

Excess—Dr J. B. M. Robertson, 1 March, 1903

Q1020 Mr. Webb: I object. That is simply an answer to a long string of questions which were asked the witness. The book was the railway book kept under the Coal Mines Act.

A1020 Mr. Webb: The only object of the evidence would be to reduce the witness to modify his own opinion.

[The Commission, at 4 pm adjourned until 10 o'clock the following morning.]

MURRAY, P. MURRAY, 1903, 12 NOV

[The Commission met at the Supreme Court, Singapore, Spring.]

[Present—

C. E. B. MURRAY, Esq., D.C.J. (PRESIDENT).

D. A. W. ROBERTSON, Esq., COMMISSIONER. | D. BUCHAN, Esq., COMMISSIONER.

Mr. Bruce Smith, Barrister-at-Law, instructed by Mr. Webb, Depute Solicitor's Office, appeared on behalf of the Crown.

Mr. A. A. Williams, Chief Inspector of Coal-mines, assisted Mr. Bruce Smith.

Mr. A. A. Lynam, Solicitor, appeared on behalf of—

- (a) the representatives of innocent miners, who were, &c., (victims of the explosion);
- (b) the employees of the Mount Kembla Colliery (owners, who were, &c.), and
- (c) the Miners' Colliery Employees' Association (the Miners' Union).

Mr. C. G. Webb, Barrister-at-Law, instructed by Messrs. Curran and Barry, Solicitors, was present on behalf of the Mount Kembla Coal and Oil Company (Proprietors of the Mount Kembla Mine).

[Mr. J. Oakley, Secretary to the Commission, was present to take shorthand notes of the evidence and proceedings.]

DR. ROBERTSON, previously sworn, was further examined as under—

Cross-examination by Mr. Lynam:—

Q1021 Q You told Mr. Webb that "consequently to the disaster we were naturally coming about as every possible way to account for it"—what did you fix on this suggestion about the heated blast of wind? A I do not think that I could give you any particular time, but I began to think about it—I began to study it very carefully, and then I wrote to some friends in the north of England, and they suggested that I might use Mr. Debenham's suggestion as to the violent explosion.

Q1022 Q It is clear, then, that you could not have had the wind theory until after the month of December? A Yes. The very day that we assumed, we could not nothing beyond the effects of a wind blast, but we could not account, Mr. Lynam, for the explosion strike. We knew that there must have been heat, and, probably, some of the explosive things that there must have been heat.

Q1023 Q You said that the day you examined the mine you found the theory of the wind blast? A No theory of all—the opinion.

Q1024 Q Do you mean the first day that you went in? A Yes.

Q1025 Q The night of the disaster? A No.

Q1026 Q The 4th of August? A The 4th of August.

Q1027 Q But on that day you had not seen the quarter of the evidence of force? A I had seen that all.

Q1028 Q Did not you tell Mr. Webb that it was owing to the suggestion you got from a friend in the north of England that you looked into the theory of Mr. Debenham's? A No. I do not know how it may have been conveyed, but I did not quite mean that. I suggested the matter to Mr. Webb, of Newcastle-upon-Tyne, and, in reply, he said that it was not a new matter, but that it had been rather a favorite theory of Mr. Debenham's, by which he had accounted for, or suggested the cause of, some of the great railway explosions.

Q1029 Q Now, you have no other suggestion to make in the Commission concerning the mine? A No, I have no other suggestion.

Q1030 Q Let me clearly understand you, what it is you do suggest—that the fall, you say, of 44 square yards—(Interposed)? A Forty-four yards square.

Q1031 Q The fall of 44 yards square in the old Right forced out air at a velocity of 700 miles per hour? A About that.

Q1032 Q Which generated heat by reason of the friction? A And compression.

Q1033 Q By reason of the friction and the compression,—do you want to add anything to that? A No.

Q1034 Q Do you know that that is what Mr. Sellers has told the Commission? A I think it very likely.

Q1035 Q And do you know that Mr. Sellers admitted that he made his calculation on the assumption that the coal fell as mass? A No, I did not know that.

Q1036 Q Did you know that? A No, I did not know that. It would be of no use to make that assumption, because—(Interposed).

Q1037 Q One moment, please,—Mr. Sellers stated that his calculations were made on the assumption that the coal fell as mass, the results would be completely altered, would they not? A It is all assumption. In any case, I really cannot understand why anybody could suggest that the coal fell in the old Right as mass.

Q1038 Q But I am putting it to you that, if Mr. Sellers admitted that he made his calculations on the assumption that the coal did fall as mass, his calculations would be completely altered—would they not? A I think in that branch of it probably they would, but that is only one branch of the calculations. In the other branch, of course, he assumed a pressure, and then—(Interposed).

- 24346 Q Wait a moment, I want to get it clear—If he did it on that base, it would be absurd? A I think Mr. Bellini had better answer that himself.
- 24347 Mr. Sherry I think, your Honor, that Mr. Robertson might be allowed to explain.
- 24348 Mr. Sherry I really do not see how you can do more than assume that it was not then a reasonable suggestion, because you can never get at the fact.
- 24349 Mr. Lynam? Q But you know also, as do I, that you put it forward as part of your suggestion, that the roof fell in a block solidly, monolithically? A Oh, yes; I think it has all the appearance of that.
- 24350 Q So that the actual fall of the roof would be something about a quarter of a second or more? A Better more than that.
- 24351 Q Half a second is that? A Well, just a little over half a second.
- 24352 Q In the whole of your mining experience, have you ever known the roof to fall in half a second? A I think any individual part of the roof would fall in half a second.
- 24353 Q Did you ever know of an instance where an area of 44 yards square has fallen in half a second? A Well, I do not suppose anybody ever took the time of a fall. I would not like to be near 44 yards square falling.
- 24354 Q Do you mean to say, as a Mining Engineer, that you believe that an area of roof 44 yards square could fall in half a second? A I think so. I am willing to permit it.
- 24355 Q You say that monolith? A Yes, I do.
- 24356 Q Now, did you work on the speed of 700 miles per hour yourself—the mathematical part of it? A Yes.
- 24357 Q You did? A Yes.
- 24358 Q I want to find out how you got the velocity mathematically? A Yes.
- 24359 Mr. Sherry? Q Before you get away from that, do you mean that the falling roof came a way square in a hole, or the roof of it ahead of the other? A Practically, as far as I could judge the fall, it appeared to come away almost bodily. Of course, I could not say whether the front came away first or not, but probably it would come away first, but it is not clear at all, sharp off, by the side of the rib.
- 24360 Q Then, your opinion is, that the body came away practically as quickly from one end as from the other? A I think so, pretty nearly that.
- 24361 Mr. Lynam? A Is it not unusual for the maintenance of your suggestion, that the whole 44 yards square area should have fallen in a solid body in about half a second? A Oh, no. We allowed about 50 per cent, to have crumpled.
- 24362 Q If you do not mind, will you kindly follow me while you work it out. I want you to show me how you got the 700 miles per hour. You said you wanted it that powerfully—will you kindly tell me how you did work it out to get 700 miles per hour, because I can only get 45 at the end of it? A Very well, take the cubical capacity of the air that would be displaced.
- 24363 Q Will you do it for me. I want the figures from you that you worked on. I want them as received from you? A I only threw it out as a suggestion. I know the fall was of it quite well, it must all be based on an assumption.
- 24364 Q I am not speaking of an assumption at all. I want it mathematically. Will you just give me the figures, so that they can go down on the notes, whereby you mathematically got 700 miles an hour? A Yes.
- 24365 Q You had an area of 44 yards square? A Yes, and then the area displaced—45 feet of air.
- 24366 Q Where did you get 45 feet of air from? A From the velocity.
- 24367 Q Did you not know that 2½ feet had already fallen? A No. Well there would have been 2 feet above.
- 24368 Q Are you aware that Mr. Bellini took it as 4½, and got this? A No.
- 24369 Q Then, do you say that you took it as 4 feet, and got 700 miles per hour? A Yes.
- 24370 Q And you never knew that Mr. Bellini took it as 4 feet 6 inches? A Not so far as I am aware.
- 24371 Q Will you tell me the amount that was displaced? A Something like 1,500 yards.
- 24372 Q Would you mind giving it to me?
- 24373 Mr. Sherry? After all, it is a calculation that is founded on all a sort of co-efficients, which have to be assumed.
- 24374 Mr. Sherry? Oh, yes. I would be very glad to hand it on. There is no place to go into a calculation.
- 24375 Mr. Sherry? The air must be compressed before it can acquire the velocity.
- 24376 Mr. Lynam? Q Will you state that mathematically, you cannot get it to 700 a few per hour? A No, mathematically, you can get it.
- 24377 Q You will undertake to say that out is that the figures can appear on the record? A Oh, yes.
- 24378 Q Leaving the mathematical part of a, now, I want you to consider the fact drawn—that a, if it fell in a solid body, did you know that 2 feet 6 inches had fallen? A No.
- 24379 Q When did you first hear that? A I did not hear that until now.
- 24380 Q Did not I tell you last week, on Thursday? A Well of course, I must say I heard it in this Court. If you did tell me, I did not recollect it, but it is more I mean in this Court.
- 24381 Q Did you ask Morrison whether the roof had fallen before? A I did not ask him whether any had fallen, but I asked him the area, he said about 45 or 46 yards, but he certainly did not say that any had fallen.
- 24382 Q When you went to view that mine, the stones near the edge of the gash were all broken up? A No, they were in very large flags.
- 24383 Q But they were not one solid flag? A Well, there were some of them, I couldn't, very large flags; there were probably 12 inches thick, or perhaps a 16 inch.
- 24384 Q Did they not indicate that the top stones were clean? A I could not see the top, it was too far up.
- 24385 Q I mean at the edge of the gash? A No, I did not say anything to draw my attention to that.
- 24386 Q Did you not see anything indicating that the fall had not finished before the disaster? A No.
- 24387 Q Did you not tell me pages 17 that in all your statements you could see that the fall had been completed between the time you first went there and the second time? A Of course, that was a very different thing, as along the roads there were stones falling every day.
- 24388 Q I am speaking of the gash? A No.

Witness—Dr. J. B. S. Robinson, 7 March, 1905.

- 24103 Q You did not tell me that? A I do not think so.
- 24104 Q The witness, page 24103, "Q Do you not know that in question preceded the fact that the storm came down—so that there fell a force of air?" A There is the storm and then between the case of my first and second trial, but I do not think that that indicated anything. I do not see how, in the fall of that large extent, the storm can be indicated, not that because the fall would equal the whole of the storm with the air? A That is a highly different thing.
- 24105 Q There you say that between your two trials one of the storms had certainly fallen? A Oh, it was falling every day.
- 24106 Q Do you mean to tell me you were not referring to the winds? A Oh, no, I was never in the wind.
- 24107 Q Do you mean to tell me that, when you answered that question, you were not referring to the winds? A No, I was not.
- 24108 Q What were you referring to? A The winds.
- 24109 Q Now, then, is a question before that "Q And, the first fall having come down a week before the disaster, is it not possible that the roof would continue to fall in small pieces?" and you answered, "The evidence is that it came down all at once?" A Yes.
- 24110 Q That is the roof of the girl, is it not? A Yes.
- 24111 Q Then, "Do you not know that on inspection revealed the fact that the storm came down—in fact they fell afterwards?" That referred to the storm on the girl? A I did not know that that was the fact. It was impossible for me to answer a question like that, or any other body, because nobody could get in. Oh, no, there were individual storm falling from the roof in that neighborhood during the whole of the two weeks or two months after.
- 24112 Q Do you give me any instance of a fall of 14 inches square coming in one solid block in your running experience? A No. I am nothing to prevent it. [Interposed.]
- 24113 Q But you cannot give any instance of it. Now, leaving that part of the data—the solid fall—and coming to the height, do you say that the first fall of 2 feet 8 inches would any make any difference? A I do not know anything about the first fall of 2 feet 8 inches.
- 24114 Q In your opinion, would a fall, a week before the disaster, of 2 feet 8 inches, make any difference in the suspension? A Probably none.
- 24115 Mr. Stine [Q] Would, the first fall of 2 feet 8 inches produce a blast of wind equal to that which you have indicated to be produced by the second fall? A I do not think so. I do not think it would necessarily alter the second. Besides, I do not know anything about the fall of 2 feet 8 inches.
- 24116 Q I do not think you understand the question. We have evidence here that there was a fall of 2 feet 8 inches, which has not been contradicted. This evidence has been given by the deputy, who went to see whether it would fall or not. Would this fall, a solid fall of 2 feet 8 inches thick, produce the same volume of wind that you say has been produced by the second fall? A Oh, no.
- 24117 Q Why? A It would not have the weight to do it. It would not have the weight to force the air out of the margin, condensed, again. Besides, I do not know anything about the 2 feet 8 inches fall. That is the first I have heard of it. I saw some Morrison and Rogers were there; and they would have told me of it.
- 24118 Mr. Lynde [Q] Do I understand you to say that the weight of a falling body, in a distance of 2 feet 8 inches, or of a great suspension upon the volume that would be forced out? A I do not think that 2 feet 8 inches of a fall would be likely to come down all in a piece. That would come down in drifts and drifts.
- 24119 Mr. Stine [Q] Do you not know in practice that the first fall is the most likely to be a solid fall? A I do not think so.
- 24120 Q I suppose you have very little yourself frequently? A Oh, yes, immensurable times.
- 24121 Q And you say the first fall probably comes in drifts and drifts, and the second solidly? A Yes, I think so, so that I saw some falls in Nevada a few weeks ago, and they came down very gradually.
- 24122 Q Is that your experience in the north? A That is my experience altogether. I do not know that it is different in the north from the south.
- 24123 Q Are the storms the same? A They are very similar storms.
- 24124 Q Do the storms in the north and the south differ? A I think that in the old pits in Nevada the storms are pretty much the same as in the north.
- 24125 Q In the hills you have seen, did they come down in a square block, or keep themselves out in falling? A No, they came down from the outer margins, and came down gradually.
- 24126 Q Does the fall come in a square block? A There is no rule for that.
- 24127 Q No rule at all? A No rule at all.
- 24128 Q Does it appear to you sometimes come very slowly in coming, even if you had not seen it, that the first in a fall is likely to come much more solidly than the second fall, which would be a broken surface? A No, I do not think so.
- 24129 Mr. Lynde [Q] That does not answer the question as to whether you say that a falling body is materially affected by the weight of it falling out of, in a fall of only 2 feet? A That is to say, the resistance of the air would affect the time of falling?
- 24130 Q No, whether the weight of the solid body falling has any appreciable difference to the air that is forced out, when the fall is only 2 feet high? [Witness did not answer.]
- 24131 Q Do you mean that a fall of 2 feet 8 inches in thickness would have any greater power in forcing out air than a fall of 2 feet 8 inches in thickness, when the height of the fall is only 2 feet? A Yes.
- 24132 Mr. Stine [Q] In other words, the velocity of the air would be governed by the weight of the falling body? A Certainly.
- 24133 Mr. Stine [Q] It is simply that the fall of that mass of matter is converted into horizontal form of the air.
- 24134 Witness [Q] There was an opening in the air, I could measure that the air would escape the body falling completely.
- 24135 Mr. Lynde [Q] When you were making your calculations, did you allow anything for the atmospheric pressure beneath the fall of 107 lb. per square inch? A Yes, I think.
- 24136 Q That you make any allowance for it? A Yes.
- 24137 Q And you still get 700 miles? A Yes.

24416. Q Do you know that Mr. Brown stated that he climbed for it, and he got 100 miles? A No; I do not know what anybody stated here. I have not read a single word of the evidence.
24417. Q But you do know that you both got the 100 miles? A Yes, and you can get it another way.
24418. Q Then there was one of the three men wrong. You saw that the height is wrong, because there was a fall of 3 feet 8 inches already. Now, coming to the next datum, did you allow anything for the relief that the pressure of air would get from the back loading? A Oh, yes.
24419. Q What did you allow for it? A, I allowed in the calculation. —
24420. Q What did you allow for it? A To get the energy of the air you do not require any relief at all. Working out the time the body took to fall, the cubical capacity of the air displaced, and the area of the passage, would give you the velocity.
24421. Q And the final opening in the area of that passage would naturally reduce the pressure, would it not? A I do not quite understand you.
24422. Mr. Moore: That only comes in as far as the compression is concerned.
24423. Mr. Lysaght: Yes.
24424. Q Would not the back loading reduce the compression of the air? A I have nothing to do with that portion of the calculation at all the back loading.
24425. Q Did you make any allowance? A It does not require any.
24426. Q Did you make any allowance? A In that branch of the calculation you would require to make an allowance.
24427. Q I ask you did you? —
24428. Mr. Moore: The Doctor is naturally rather troubled by the question, because the allowance for relief would be a negative quantity. The more relief, the more velocity; the more relief, the less pressure.
24429. Mr. Lysaght: Q I ask you did you make any allowance? A No.
24430. Q Taking that current, as I take it you do, that it struck the face of the man's head — (interrupted)? A Yes, I understand.
24431. Q Do you make any allowance for the divergence of force there, and the consequent reduction? A No. It is not required. The damage is done then.
24432. Q Then do I understand that the blast of air you speak of would only travel up and down the main front? A Oh, no, it would disperse into all the open spaces as it went along, just as any other force would.
24433. Q Can you account for the fact that it did not do any damage down the 14th Right? A All the 14th Right was covered.
24434. Q Where the 14th Right intersects the main level? A It practically did no damage either on the 14th Right or the 14th Left, a dry road.
24435. Q Oh, yes, it did considerable damage on the 14th Left? A No, it did no damage at all on the 14th Left.
24436. Q You know that it did no damage on the 14th Right? A Yes.
24437. Q But it did a considerable amount of damage down at Price's Flat—where were steps and things? A Well, I do not think the blast of air would do that much. That would be due to vibration.
24438. Q Well you tell me what it was? A The severe vibration or percussion of the air.
24439. Q Not the initial blast? A I do not think the initial blast did it.
24440. Q And you account for any reduction of force along the 14th Left and at Price's Flat by percussion of air? A I think so. Certainly a little pressure went down—a few pounds down—the 14th Left, but it did no damage.
24441. Q That was all done by percussion of air? A Yes.
24442. Q Now, if Frost and Evans have stated that they were knocked, when they were trying to get down to Powell's Flat, by the blast, dust, and smoke, how do you account for the smoke? A It was carried with the windfall air.
24443. Q Smoke? A Yes.
24444. Q Smoke of what? A Damaged dust.
24445. Q Smoke from damaged dust? Do I understand you then to say that all the smoke that was in the mine after the disaster was the result of damaged dust? A Yes. Of course I am sure.
24446. Mr. Roberts: Q But there you did not get there until pretty late? A It was not before 10.
24447. Q You were not in the mine before 10, were you? A Oh, yes, I was in at a quarter past 10.
24448. Q What time did you arrive in Wellington? A When does the train arrive? About 9 or 9.30. I went straight away.
24449. Mr. Barry: I may tell you that Dr. Robertson started from Wellington Station at five-and-twenty minutes to nine. I engaged the trap.
24450. Mr. Moore: I was outside of the mine about 10 o'clock. I think it was about a quarter past 10 when I went in. I knew that at midnight I was down at the shaft's bottom.
24451. Mr. Roberts: Q You admit then, that you got to the mine at 11 o'clock, and the explosion took place at 3, and that, the ventilation going on still, there would not be a great deal of smoke left for you to see? A Oh, yes. Of course I am sure.
24452. Mr. Roberts: Q I think you told Mr. Wade that you could observe or hear anywhere in the mine? A No, I did not quite say that.
24453. Q But, where you went in, the mine shaft was not hot? A No, it was not.

(At 12.45 the Commission adjourned till 9.45.)

Vices—Dr. J. R. H. Roberts, 6 March, 1900

APPROACH.

[On resumption at 3:45 p.m. Mr. W. R. Pratt attended to take shorthand notes of the evidence and proceedings.]

Dr. JAMES ROBERT MULLIE ROBERTSON, previously sworn, was further examined as under:—
Cross-examination by Mr. Lymington (continued).—

21421. Q Do you know that Mr. Rogers advised on the night of the disaster that he did not go too far into the 4th Right on account of the heat? A I think highly so. I do not know a single word of what he said in the delivery. I think it is likely, because he reported it to me.

21422. Q You admit that there was considerable heat throughout the night? A Only in the 4th Right.

21423. Q At page 41 of the Deposition, taken at the request, Mr. Rogers said:—

I did not think it advisable to go as far as No. 4 Right on the night of the 31st, because I felt kind of a heat; that was just at the mouth of the 20-acre pond.

Do you know that a number of other witnesses have stated that heat was given off in different parts of the mine? A I think in the 4th Right only.

21424. Q At Pratt's Flat and Stafford's Flat? A I do not know a single word that has been stated in the evidence here.

21425. Q You are present for that heat? A I cannot account for the heat, I never heard of it before. Probably the development of the vein here may account for it.

21426. Q In what way would the development of the veinification account for it? A Because it would interfere with the circulation of the air, and you would approach the natural heat of the strata.

21427. Q That was only 70 or 80 degrees? A. Kewell is only 60 degrees.

21428. Q That is not heat? A. But the witnesses state that extent of heat they found?

21429. Q They said it was very hot. — [Interposed.]

21430. Mr. Wolfe. I do not think beyond and it was hot in Pratt's Flat.

21431. Mr. Lymington. Good-bye and it was hot in No. 4 Right.

21432. The Witness. I think they were stumbling up as hot as they could, and that made them hot.

21433. Mr. Moore. I do not think, Mr. Lymington, you should come examination as to those on the temperature that occurs here or less, unless you know the exact facts as to which you are cross-examining him.

21434. Mr. Lymington. Q You said that you never heard of any difficulty in getting the road down until the last event. What was the "last event"? A. The 4th Right road.

21435. Q Do you mean at the time of the disaster? A. The road did not fall with the same freedom that it had done before.

21436. Q Why? A. I do not know.

21437. Q You did not know that it had fallen 2 feet 6 inches previously? A. No, we are told so. There was an difficulty further than the fact that the road did not fall.

21438. Q Now, I tell you that Morrison agrees that there had been a previous fall of 2 feet 6 inches. Do you still say that there was difficulty in getting the road down? A. Yes.

21439. Q What difficulty? A. Because the road came down in a body, and did not fall completely; we took the proper way.

21440. Q What precaution was taken in a road is expected to fall? A. No further precaution.

21441. Q What precaution was taken? A. You can take no further precaution.

21442. Q When you expect a road to fall over a large area, would it not be wise to withdraw the men below? A. There were no men in the roadway. Nobody could expect a fall such as this.

21443. Q You expected it after the disaster? A. No.

21444. Q You expected it after the disaster? A. No.

21445. Q Do you say that, when a large area of road is expected to come down suddenly, the men should not be withdrawn also? A. How can we say how it will come down?

21446. Q You said that you expected a fall of a large block? A. I said that it fell in a large block.

21447. Q Was it a remarkable thing for it to fall in a large block? A. We never had a similar fall before.

21448. Q You never before had a similar fall to this within your experience? A. But with similar consequences.

21449. Q You have never known a fall over as large an area as this? A. I have known a fall over as large an area, but it came down gradually.

21450. Q You never know of a road fall over as large an area? A. This particular piece of road is particularly strong.

21451. Q If a fall of any particular magnitude is expected, should not the men be withdrawn also? A. No.

21452. Mr. Richter. Q In view of what has happened, should not something be done? A. It depends on the consequences.

21453. Q If the consequences were small, what would you do? A. I think we should not think to do anything we could think of.

21454. Q What would you think of? A. As far as I know, we have no area of road being pillared under the same circumstances.

21455. Q Suppose you had, what would you do? A. I think, if the road came over as large an area, we would withdraw the men. If the consequences were the same, that is all we could do.

21456. Q The only thing you could do would be to withdraw the men? A. I do not think we could do anything else. I should be glad to hear any suggestion anybody could make to me as to what could be done under the circumstances.

21457. Mr. Lymington. Q What consequences? A. The conditions.

21458. Q What conditions? A. Very, if there were pillars in the neighborhood of where a number of men were working, and where a blast would affect them, I would certainly withdraw them.

21459. Q There were not the conditions at Kewell? A. No.

21460. Q There is a connection between the conditions at Kewell and the conditions under which you say you would withdraw the men? A. I think, if you would come to the point, it would be better. If you state what conditions you mean I would consider it.

21461.

24497. Q. You said that, under similar conditions to what took place at Kankin, you would withdraw the men? You now say that the conditions at Kankin were not such as would lead you to withdraw the men? A. I mean in the light of subsequent events.

24498. Q. You would withdraw the men if any large fall was expected? A. I think so.

24499. Q. Withdraw all the men at once? A. Yes.

24500. Mr. Robertson. Q. Suppose you had a large area of roof from which the timber had been withdrawn, and the roof did not fall—how long are you going to withdraw the men for? If it did not come down for five years, would you keep them away? A. You can easily see that it is scarcely possible for a man to contend to cross again.

24501. Q. How is it possible to withdraw the men if the roof does not fall? It would mean stopping a number of men altogether. If the roof did not fall and you had to withdraw the men until it fell, you might have to shut up a colliery? A. I can see that it is a difficult question to answer. Unless you put the question exactly before me, I cannot answer it. A supposition that men of this kind cannot will be answered.

24502. Q. It often happens that a large area of roof is left standing, where all the pillars have been withdrawn? A. Yes. At the Newmarket Colliery at North Haverham, there was a case of that kind, and I suggested it several times within a fortnight.

24503. Q. As Coalfield there are 14 acres standing now. Should all the men be withdrawn altogether? A. I do not understand why that roof has not come down.

24504. Q. The suggestion has been made that the men should be withdrawn. That roof has been standing for years. If the men were withdrawn the colliery would have to stop for a number of years? A. I think that the men who are relieving in on the ground are I have known. I was on duty at North Haverham which remained up for a considerable time, but, eventually, it began to come down from the center, and came down gradually.

24505. Q. At the Grays Colliery there is a large area which has been standing for years? A. Yes.

24506. Q. In the Grays Colliery the roof has been standing for the last three or twenty years? A. Yes, for thirteen or twenty years. There were fourteen levels all kind, thin, and moderate.

24507. Q. And a 12 or 13 feet beam? A. Yes, it is a difficult thing, and circumstances must guide you.

24508. Mr. Hendon. Q. Would it have made any difference at Kankin if the miners had been working with safety-lamps? A. Not the slightest.

24509. Q. You say that nothing was lighted by the lamps which may have been stirred up by the blast? A. No.

24510. Mr. Egan. Q. Do you think the blast of air stirred up coal-dust? A. I think so.

24511. Q. Do you think in large quantities? A. I think a considerable quantity came out of the gird, and from the clips.

24512. Q. And from the main road? A. Practically there was no dust on the road.

24513. Q. How long before the disaster was it at Kankin? A. A short time before.

24514. Q. A month? A. No, a week. I think that Mr. Hendon and myself were on there two or three weeks before the disaster.

24515. Mr. Hendon. Q. Now that you have got to hear that a fall actually took place a week before the fall at the time of the disaster, would not the dust be stirred up by the previous fall? A. It depends to what extent it would be.

24516. Q. We have evidence that there was a fall? A. There might have been a lot of dust from the shippings. No. I was practically a dustless roof.

24517. Q. In your opinion, the dust was sent out by the fall? A. Yes, or else it would come from the shippings, the clips, or the roads, but the roads were practically dustless.

24518. Q. Would the fall have a large quantity of dust to play on in the gird? A. It would blow out a large quantity of dust.

24519. Q. Where would it come from? A. We have evidence that a large amount of dust came out of the gird.

24520. Q. You say the first fall would form a dust? A. I would like to know more about that first fall. I am not satisfied. I should like to know much more about it. You are asking me to give an opinion on a subject which I have not investigated.

24521. Q. If a fall took place a week before the disaster surely the dust, particularly settling in the roof, would be swept away? A. I do not think it would come from the roof at all. I think it would be blown from the pillars and dust on the floor.

24522. Q. If the evidence as to the first fall is correct, the dust would be cleared away? A. I do not think so. I cannot say it would be.

24523. Q. If that were so where would the dust come from then? You would have no dust in work as? A. I can hardly think the first fall would be so complete as to cover the floor. I cannot see it. I very much doubt whether much dust came down at first. The roof was hard, thin, and brittle. It is not a roof to fall in portions. It is a different kind of roof from that on the dip side of No. 1. I have doubts about the first fall.

24524. Mr. Robertson. Q. The evidence of the first fall seems to be conclusive? A. I have seen the roof, and doubt it.

24525. Mr. Hendon. Q. In your opinion, the roof would fall in one block? A. The appearance of the fall convinced me of that.

24526. Q. You only share you are in doubt about is the first fall? A. The appearance of the roof is such that I very much doubt it.

24527. Mr. Egan. Q. You said that there was evidence of dust coming from the gird—where was that evidence? A. In No. 4 itself—on the mouth of No. 4.

24528. Q. What were the conditions? A. There were accumulations of dust swept round the corners.

24529. Mr. Robertson. Q. Do you mean the corners of the main road? A. Of course, corners may have come out of the shippings and have been deposited after the air was still. The dust you see on the roof and sides has been deposited subsequent to the accident.

24530. Q. On the main road? A. Yes.

Witness—Dr. J. R. M. Robinson, 6 March, 1935.

24231. Q As in the earlier from the 4th Right, it was wet? A. There was always a little water coming out of the 4th Right.
 24232. Q Does that not be there? A. It would come probably from the side and floor of the pillars.
 24233. Mr. Lough? Q. Where was there evidence of dust coming from the gas? A. There was an accumulation of dust at the junction of the 4th Right with No. 1.
 24234. Q There was no indication that it had come from the 4th Right? A. It is only my opinion.
 24235. Q All the indications of force in the 4th Right were that the force had gone why? A. Certainly not.
 24236. Q Did you see any props stuck in slack pointing inlets? A. I saw one, but one welder does not make a corner.
 24237. Q It had been a prop supporting the roof? A. It might or might not have been.
 24238. Q Can you account for WP? A. No.
 24239. Q Did it not show that the force was going why? A. Everything else pointed the other way. The welder does not make a corner. It was inclined to go towards. There was a large stone there.
 24240. Q Did that indicate the force going why? A. No, it did not indicate that.
 24241. Q What about the large stone? A. The prop had probably been put up against the roof, and a large stone had fallen.
 24242. Q What was the stone? A. It was lying in the middle of the road.
 24243. Q Was it not forced why? A. No.
 24244. Mr. Robinson? Q. I may say that that prop and several more were pointed out to a number of people who inspected the place, and no one suggested otherwise than that it was pointing why, and the slacks there also? A. Because after. The slacks were different. They had been taken from the waste, and they were strung all along the road why.
 24245. Q It is unnecessary that people can draw different conclusions from the same thing? A. I saw it plainly when the fracture was put up. That was on the 15th of September.
 24246. Q That was an accident after? A. Yes, but there was nothing to disturb it.
 24247. Mr. Lough? Q. Have you anything in your notes of 15th September about it? A. I do not know, I will look.

When having been put up to tell it the 4th Right, presented in full very high from water out and from side, prepared slacks there from other towards entrance, which is wet.

24248. Q We have the evidence of Mr. Robinson that the force was why.
 24249. Q With regard to your notes of the 25th of August, Mr. Jones, Mr. Belton, and Mr. Hay, were with you? A. Yes.
 24250. Q Mr. Jones was travelling with you all along? A. Yes.
 24251. Q Do you know that Mr. Jones has stated that in the same level there was an explosion of fire-damp? A. I did not understand him to say so.
 24252. Q Was Mr. Jones with you on the 25th of August? A. Yes.
 24253. Q He is a competent man? A. Yes.
 24254. Q Listen to his evidence, pages 21448, 21450, 21451 of the shorthand writer's report.
 "Q. I mean that there was an explosion after the big outbreak from the gas? A. Yes, nobody could go beyond that fact, that there was an explosion of a fire-damp explosion in the No. 1 section, but it was in a very small extent."

Did he tell you that? A. No.

24255. Q But we need it to you.

- "Q. But the subsequent explosion, which you now speak of as gas, has really from the same? A. That might kill the men why—I mean in the shaft section—from the after damp.
 "Q. That explosion of gas would kill the men why, and the fall, or the result of the fall, would kill the men why? A. There is no doubt about it."

A. I do not agree with him.

24256. Q Then Mr. Jones was asked.

- "Q. Where do you say this explosion of gas would take place? A. I could not like to locate a spot. I could not do that, but I should imagine that it would be somewhere near Affin's place, or the where that was—some place near there. I forget the name of the place where I saw some indications of there and entrance here, but that is the only place."

So that you are aware stated that there was evidence of a fire-damp explosion in No. 1. To do not agree with his conclusion? A. No.

24257. Q Although he made the suggestion with you? A. Yes.

24258. Q And he signed the statement with you? A. We all signed it.

24259. Mr. Belton? Q. Is that evidence by Mr. Jones contradictory, or is it additional matter? A. I think it is contradictory.

24260. Q Is it not additional to your report? A. Yes, and it is directly contrary history in the report.

24261. Mr. Lough? Q. This statement which you had in your hands is not on with? A. No.

24262. Q Mr. Jones was not aware when he signed it? A. Yes.

24263. Mr. Lough? Q. Dr. Robinson did not hand any statement to. There are his own notes.

24264. Mr. Lough? Q. Why did you get our managers to sign this statement? A. Because we all examined the men of the same time, and it was thought advisable to get a statement down up. I think Mr. Jones was the one who took the notes.

24265. Q Why did you get the statement signed? A. It was suggested that it should be done.

24266. Q Mr. D. McArthur, Mr. Dan, and Mr. Macintosh signed it. Did you think that the managers would object then? A. No.

24267. Q You know Mr. Jones has disagreed then? A. Yes.

24268. Q Do you know whether Mr. Macintosh has disagreed then? A. No.

24269. Q These three gentlemen I mentioned signed the statement stating that the facts discussed were accurate in detail? A. Yes.

24270. Q Do you know that Mr. Rogers stated in the report, as reported on page 43 of the deposition—
 "I do not think that had anything to do with the fracture. I mean mention any other cause for the explosion except gas and was that in gas or a fall?"

[He answers.]

24271. Mr. Wells? He refers to a blast, at the end of the evidence.

24272.

24522 Mr. Lyngby | Q That contradicts your evidence? A Yes.

24523 Mr. Robertson | Do you put the notes by Dr. Robertson in evidence? [No answer.]

24524 Mr. Bruce Smith | Mr. Robertson produced his written notes of what he saw in the mine.

24525 Mr. Robertson | I understand that you saw a report that was being sent from

24526 Mr. Bruce Smith | No, they are his own notes, it is not a report. They are notes of his inspection.

24527 Mr. Robertson | They are just notes.

24528 Mr. Lyngby | You said on the last day you were here that you did not know that you had been discovered in the mine? A I do not know yet. I do not know that it has been discovered upon the surface. What I said was that I asked McGrawhite to take Mr. Adams to a certain place in the mine, to see if any gas could be found there.

24529 Q You have no more notes—

Mr. McGrawhite, with a hydrogen lamp, exposed less than one half per cent. of gas in the place on Saturday night, making it unsafe to work.

Do you not know that McGrawhite discovered gas? A I know that. I gave you my opinion how it was ascertained.

24530 Q It is not in the top heading at all? A Where is it?

Q At the face of Stafford's working place no gas was found, nor was the bottom shaft displaced.

McGrawhite, with a hydrogen lamp, reported less than 1 per cent. of gas. That was in Stafford's working place, on Saturday night. It was not in the top heading at all? A That is so.

24531 Q.

As it was evident that this heading was in no way connected with the origin of the disaster, we proceeded to No. 1 Right.

A We went on to No. 1 Right.

24532 Q You know that gas was discovered by McGrawhite in Stafford's working place, which was above Stafford's fan, and that it had nothing to do with the gas found by Mr. Adams in the back heading? A The report explains it all.

24533 Q.

On entering No. 1 Right heading next, we found indications of a blast proceeding lately. The ventilation door between Nos. 1 main and return road was forced open and closed.

Do you remember that? A I remember everything.

24534 Q Where was Mr. Adams? A Out from the road.

24535 Q From the heading road towards the travelling road? A If you read on, you will see what his latest evidence is. As a matter of fact he was taking notes for the party.

24536 Q Where was that report made? A No, no more exact.

24537 Q On the 10th of September? A No, on August 4, I think.

24538 Mr. Roberts | A. H. Brown had considerable knowledge of facts, has been extremely accurate in a fact, has he changed his opinion since? A I do not think so.

24539 Mr. Lyngby | Q Did you not say that you did not know that any man had been burned? A I said that I did not know of anybody having been anything more than scalded.

24540 Q You have this on the report, "At No. 10 Right and men were found slightly burned?" A That is a general statement; it is not very accurate.

24541 Q You signed it? A Yes.

24542 Q Did you find them? A No, that was a statement made by Brown.

24543 Q I thought they were your own notes?

24544 Mr. Bruce Smith | They are. At this place Adams and men were reported to have been found.

24545 Mr. Lyngby | Q We proceeded up the towards the waste, which was of the dump, but no gas was discovered. Mr. Rogers has reported that when in this locality, looking for bottom, the temperature was high? A That was the 4th Right.

24546 Mr. Bruce | A little time more Mr. Lyngby quoted the evidence of Mr. Rogers with reference to gas in the mine. If you will turn to page 22 of the Depositions at the request you will find Mr. Rogers said—

The only thing I saw through that it was not so. It is kind of good that it is the last thing; that is that as soon as I was told in the 4th Right, coming a blast, and I thought it was then quite done; I mean my what the blast was; I have no idea, it is reported as then that the mine then the 4th Right place.

24547 Mr. Lyngby | Q You told Mr. Wade that you went down the mine slightly distant for a specific purpose? A Yes, to ascertain whether a fire which had been reported to the Manager, and especially by my brother, was not burning. It was the burning of bottom.

24548 Q Do you know that, on the place down by Mr. Wadsworth, he changed the stoppings on the first and back heading upon the 5th Right, all down to our direction? A I think so.

24549 Q Do you say they were blown in one direction? A Yes. On the outside, the heading there, had slipped down somewhat, into the main road.

24550 Mr. Robertson | Q That is by and the 5th Right? A Yes.

24551 Q It is consistent with the explosion having knocked down the stuff? A It appeared to me that two or three times had fallen down, and that the top of the heading had been blown into the back heading. I dare say my proposition would probably check the road.

24552 Q Do you say that the evidence of force was from the back heading or the main heading? A There was a cut through, and the next place was built up with stones, and some of the stones on the surface corner had slipped into the heading, but the top stuff was blown into the back heading.

24553 Mr. Lyngby | Q Where you put that pipe that was found? A My Rogers has got it.

24554 Q When found it? A Mr. McGrawhite and Mr. Hestlin saw some weeks afterwards.

24555 Q It was Hestlin who found it? A I think it was.

24556 Mr. Bruce Smith | I should like the man who found it to come before the Commission.

24557 Mr. Lyngby | Q When did you understand found it? A I think Hestlin found it.

24558 Mr. Bruce | The evidence is that McGrawhite and Hestlin were together.

24559 Mr. Robertson | Q If that business was lit by a pipe, somebody must have been smoking? A The evidence points that way.

24560 Q The man who lit the lantern would cigarette it? A There have been at the same moment that the disaster occurred. One man was found with a match between his finger and his thumb, just as if he had been striking a match.

Witness: Dr. J. R. M. Robertson, 9 March, 1933.

- 24011 Mr. Richter: Q That was in a different place? A It was a little further up.
- 24012 Mr. Evans Smith: Q This is a very important matter. Is the theory of the pipe burning the battery as set up, it ought to be proved.
- 24013 The Witness: I did not know what to think of the burning of the battery. It was mentioned at the time. I and I did not see how it could be the result of an explosion of gas. I cannot imagine how the gas would go over and through an inflammable material and light another inflammable material.
- 24014 Mr. Robertson: Q Would you be surprised to learn that a piece of newspaper could be exposed to the kind of a gas-pipe that had a leak of explosion, and the paper remain unburned? A Yes, I think it could, but, if there had been time to set the battery on fire, it would have set fire to the paper and to the battery, which is blown down and twisted round the pipe. Of course, I know that it is impossible for me to understand all the phenomena of such an accident as this. We were not present and we do not know how it occurred. We do not know the circumstances. In all these accidents there are many circumstances that can hardly be explained.
- 24015 Mr. Robertson: Q In all these explosions there is evidence of inflammable material being passed over the flame? A It is difficult for me to see how that battery could be ignited with inflammable gas, because the same flame and flame blew down two or three battery racks and tore them into shreds. It must also have passed over paper, and then there are the checks with dry timber back. How could it ignite the battery which is not more inflammable than any other which it passed over? The extraordinary feature of this accident is the numerous shavings of iron evidence of heat. In all other explosions which we read about, the evidence of heat and shavings has been superabundant. In this case it is pointed out in connection with the examination of real tests that there are instances where there is an evidence—and then, when the oxygen has become very abundant, there is evidence of striking.
- 24016 Mr. Richter: Q Did you see the pipe? A I saw it immediately after it was found.
- 24017 Q Where? A I did not take any note of the day.
- 24018 Q How long ago? A Some months ago—approximately after it was found.
- 24019 Q Why did you do it to you? A Mr. Reichle and Mr. Rogers. They told me that it was found on the edge of some white ash.
- 24020 Q That was after you had finished making these notes? A Weeks and weeks after.
- 24021 Q You never exhibited it in the notes? A No.
- 24022 Q You never exhibited it in any other notes? A No, they were made before the finding of the pipe.
- 24023 Mr. Robertson: Q Did he give you the circumstances? A The pipe was found under some white shavings of the hand battery. It had fallen on to the floor. There was a small piece of battery lying over the pipe.
- 24024 Mr. Richter: Q A small piece of unburned battery lying over the pipe? A Yes.
- 24025 Q Was it a dry pipe or a wooden pipe? A I am not a smoker, but it was a wooden pipe. It was a hand-rod, with a black mouthpiece.
- 24026 Mr. Richter: Q Do you know whether Mr. Rogers has brought it this morning? A I think he has, he told me he had.
- 24027 Q Did he show a you to day? A No, he told me he had brought it.
- 24028 Q Did you know that the waste workings were only being examined once a month? A Where do you mean?
- 24029 Q In the wastes? A Most of the wastes are travelled over nearly every day.
- 24030 Q Do you have a special rule that requires them to be examined at least once a week? A I suppose there is such a rule or that.
- 24031 Q Do you know it? A No.
- 24032 Q Well you tell me what this special rule refers to—No. 10—

No shall at least once in every week examine, as far as is practicable, the state of the waste workings—

(Interpreted)

- 24033 Mr. Wade: Q Read the whole of the rule.
- 24034 Mr. Langley: I am not taking my directions from you.
- 24035 Mr. Wade: The rule adds—
and men surveys.

- 24036 Mr. Langley: Q Is there anything about the return surveys. He is to examine the waste workings and the main surveys,—the main surveys have nothing to do with the waste workings? A I think most of the main surveys go right through the wastes.
- 24037 Q What does that rule refer to? A I should say in English it refers to the surveyed pillar workings.
- 24038 Q Is that all? A It would not refer to anything else.
- 24039 Q Would it not refer to the gault? A Certainly not.
- 24040 Q Would it not refer to the old mine gault? A No.
- 24041 Q Is there no rule requiring the inspection of the gault? A No, you cannot inspect gault.
- 24042 Q Your construction of the rule is that it only applies to pillars not being worked? A Yes.
- 24043 Q Those that are standing and not being worked? A That is all.
- 24044 Q Then, as far as you know—then as far as you know, or know any—no examination whatever was made of any gault? A I do not think the men in town who could examine a gault.
- 24045 Q As far as you know, as a working surveyor, no examination was made of any of the gault? A Oh, certainly not. They could not. The roof is all down, and the spaces closed up.
- 24046 Q Then the report book that shows the examinations of the waste workings refers only to the pillars standing and not being worked? A That is right.
- 24047 Q And no more? A Yes, no more.
- 24048 Q Is that your general interpretation of the meaning of waste workings? A Yes, it is. It is a pity it was put in at all, because no one can examine a gault.
- 24049 Mr. Robertson: Q What is the meaning of "waste workings"? A It is a loose term.
- 24050 Q Does it not mean temporarily also done? A Temporarily abandoned I should say.
- 24051 Q Was the rule formulated by the railway officials, or was this rule enforced by the Department of Mines? A I cannot tell you.

24001 Q When are the special rules drawn up by? A First by the expert representatives, and then they are submitted to the Department for approval, and also to the miners.

24002 Q This rule, I believe, would be formulated by the Managers? A I fancy it would be. Very likely it would be taken from the old rules.

24003 Mr. Roberts Q I take that if you have got a very large area with a very solid roof, from which the pillars have been extracted, which it might be practised to examine, there would be need to examine that? A Well, even at Clifton, where the workings there were brought on for my mine, I should not like to hear of anyone going further in than the edge of it. I did not see what good you can do—you can only run into great danger.

24004 Q Is it necessary to go to the edge? A I do not think it would do any good to go in the edge attempting to see whether it was false.

24005 Q You are of opinion that there should be no examination of roofs? A As a rule, you cannot examine them, because the roof has fallen down.

24006 Q Are you still of opinion that it is not necessary to examine workings of that kind? A I do not think it would be safe or practicable.

24007 Q It may sometimes be safe? A No. When there is an area and you are waiting for it to fall, after the groups have been taken away, it would be dangerous. I think the Manager who got a man to go in there—if a man would go—could be induced for manslaughter if an accident occurred.

24008 Q Should they be examined? A They might not be examined safely.

24009 Q Where it is expected to fall? A That is a matter of opinion.

24010 Q Do you think they could be examined? A No, not the roofs.

24011 Mr. Grogan Q Do you know that Rogers, the present deputy, spent five days examining one of these roofs? He might spend five years examining one.

24012 Mr. Robertson A No, he said that it would take five days to examine the main workings.

24013 Mr. Grogan Q You take Mr. B to mean the examination of pillars of coal, standing and not being worked, and nothing more? A Nothing more.

24014 Mr. Roberts Q What steps would you take in a mine known to give off gas to examine the roofs? A As a rule, the roofs fall and close up.

24015 Q I am talking of roofs that do not fall—the circumstances may arise? A When?

24016 Q At Clifton? A That is only a case of waste. The roof is working gone.

24017 Q You mentioned a large gas that had been standing at Clifton, and which had been standing for years? A No, I did not say so.

24018 Mr. Robertson A I think that it was Mr. Jones who referred to that.

24019 Mr. Roberts Q Was it not pointed out to you, when you and I went together to the witnesses for years? A Mr. Robertson referred to Clifton, but that was a different case.

24020 Mr. Robertson A I said that it was possible for pillars to be withdrawn and for the roof to be left standing for years without gas appearing generally.

24021 Mr. Roberts Q Supposing you had strong strain and it was possible that it might stand up for years—what would you do to prevent the accumulation of gas in a mine? A In that case you would require to direct a current of air through it.

24022 Q Would you regard it as necessary to do that? A I think anyone would naturally do that.

24023 Q These roofs which are not safe should have a current of air through them? A Yes.

24024 Mr. Lyngby Q You know that near the Rumbia disaster double doors have been ordered for the main intake? A Yes, by the Department rule applying to all mines.

24025 Q Do you approve of the rule? A Yes.

24026 Q You recognize the danger of single doors? A In some cases.

24027 Q I am putting to you the case of doors between the main intake workings. If they are guarded by single doors, that would clearly be a danger? A I do not say so in all cases.

24028 Q I am putting to you now the case of the main intake workings and the main returns? A I do not know—it depends. It may be an advantage to have single doors.

24029 Q Take No. 1 right near level. That would be a place where, under the new rule, there would be double doors to guard the air? A Yes.

24030 Q Between the back heading and the front heading? A Yes.

24031 Q Would it not require double doors along the 4th Left? A No.

24032 Q But it would require double doors between the front and back heading of No. 1 main level? A Yes.

24033 Q If there were not double doors there before the disaster, would it be evidence of bad management? A No, it would be an advantage to have no doors there.

24034 Q To let the intake air short-circuit in the return? A No. In that particular case the air that reached the roof let the light come direct from an air, and it was positively fresh air when it reached the return, so that it would be an advantage if it went into the next habitat.

24035 Q The object was to keep the intake air from going into the return? A That is what it would not do. If you took away the double doors altogether, and that door on the right-hand side of No. 2 in the back heading, the whole of the ventilation would go round the face, and not by the return.

24036 Q Do you approve of double doors? A As a general principle.

24037 Q You told Mr. White that there was no risk of exposure—do you know that Mr. Rogers has stated that he would not incur any expense without consulting you? A I do not know when he has stated.

24038 Q Do you know that the preceding Manager stated that he would not incur any expenditure without consulting you? A I know that thousands of pounds have been spent without consulting me at all.

24039 Q Do you know that it was given as a reason to the Government Inspector, for not improving the ventilation that it could not be done without consulting you? A If you are talking me what I imagined, as I was told, because I stated no expense whatever.

24040 Mr. White Q There was a report furnished by Mr. Brown — [interrupted].

24041 Mr. White Q What is the date?

24042 Mr. Lyngby Q The 11th of January, 1893. It says that the question of new furnace ventilation was put before Mr. Green, but he would only ask through Dr. Robertson—do you know that? A Yes, I have that.

24043 Q Was Mr. Green peer Manager? A Yes a few months.

24044.

Witness—Dr. J. P. H. Johnston, 8 March, 1950

- 21405 Q Do you not recollect it? A No, how long it was
21406 Q 1949? A No, pretty accurate
21407 Q Did you not promise the House that you would get up a list? A I cannot say
21408 Q Did you write a letter? A I cannot say
21409 Q You remember your Manager being presented because of his contribution in the House? A No
21410 Q Did you know that Green was present and? A No
21411 Q Did you hear of it? A I may have done so, but have forgotten it
21412 Q Do you know that the defendant's counsel pleaded guilty in the charge, and produced a letter from Dr. Johnston stating that a new device would be built, and a list would also be created,—did you write such a letter? A I cannot say
21413 Mr. Johnston Q What did he do. I presume that the Manager may champion a position and put up a banner instead? A Yes
21414 Mr. Lysaght Q This is on the question of whether the Manager of the military had power to move any expenses
21415 Mr. Johnston Q The Manager could not have unrestricted command of the Company's capital for ordinary expenses, such as for location clerk and for stores, he might be at liberty to spend money, but you do not simply expect the Manager to have control of large expenditures, such as would be necessary for the building of a new machine as a try to improve the installation
21416 Mr. Lysaght Q Mr. Rogers did counsel you? A He often asked me if he could have certain things, and I would agree
21417 Q You changed your opinion as circumstances would arise? A I changed my opinion sometimes
21418 Q You changed your opinion about the examination of deputies? A I do not see why you should assume that
21419 Q Did you not give evidence before a Select Committee on the 6th of April, 1950, to the effect that deputies should pass an examination? A I quite forget
21420 Q Will you swear you did not? A I have no idea whether I was examined
21421 Q Here is the evidence, I will read it to you You have stated now that, in your opinion, a deputy should not be examined
21422 Mr. Wade Q He said so much thing
21423 Mr. Lysaght Q The question was put to you about deputies passing an examination? A Yes
21424 Q And you answered—
The examination should be made as practical and as fair as possible
A By the Manager
21425 Q You were asked whether a man who takes charge of £10,000 worth of machinery should not be a competent man? A Yes
21426 Q And pass an examination? A Yes
21427 Q What did you mean by? A By the Manager
21428 Mr. Johnston Q That must refer to somebody else above the position of deputy if the person had charge of machinery to that value
21429 Mr. Lysaght Q You said that a man who held a service certificate should not pass another examination as Manager— [interrupted]
21430 Mr. Wade Q I agree, that is not so
21431 Mr. Lysaght Q Do you think that a Manager who holds a service certificate should pass an examination? A No
21432 Q And you state before the Select Committee that were holding service certificates ought to pass your examination? A I really do not recollect anything about it, I do not know what Select Committee it was
21433 Q It was a Select Parliamentary Committee, on the 10th of April, 1950? A There have been so many of them that I have forgotten
21434 Q It was on the working of railways Do you say that man who held service certificate should not pass an examination? A I think not
21435 Q Have you always held that opinion Will you state that you did not come that you thought otherwise? A I will not come to any thing as the other
21436 Q I will read it to you Did you say—
One error was greatly made in this effect, that we thought that examinations were necessary, but that under the conditions of the Army it would be unfair not to make them examinations in a large extent not, but in the same way had limited ones, it is probably in them, you had not the opportunity of getting the examination before there were young people were were being to enter the Army
A That is for persons who did not hold certificates
21437 Q But you have certificates of service? A No
21438 Q Then you were asked, did you believe that an examination should be passed by a deputy, and you said that the examination should be as practical and as fair as possible Is not that contrary to what you say now? A I do not think that that is all concerned
21439 Q Did you not say, as regards the first recommendation, three years ago, that you agreed of it? A No
21440 Q You know that a very small examination of evidence is dangerous? A Under certain circumstances
21441 Q You have found it necessary to have the real-duty entered Will you tell me whether you approve of it? A If I did not approve of it, I should not do it
21442 Q If the roads had been entered, would that have mitigated the disaster? A There was no doubt on No 1 at all It was a dead-end road
21443 Q What things did you—did you not mention that the 4th Light engine was faulty? A Yes, that was before the disaster
21444 Q It was not dangerous? A No
21445 Q What did the dead-end road mean? A I suggested one or two points among the others
21446 Q We have had evidence here that certain parts of the engine were faulty We know had it been Morrison and other persons If any parts were faulty, should they have been entered? A If they were faulty enough
21447

- 14707 Q What is your opinion of "dusty enough"? A If the dust is pretty thick on the floor.
- 14708 Q How thick? A Several inches.
- 14709 Q You would not water for any dust less than several inches thick? A I would not let you put it down.
- 14710 Q You asked me what I thought was a dusty road, and I answered it.
- 14711 Q When would you water it—what would be the accumulation of dust to make you think it necessary to water it? A If there was any dust at all—no one responsible except at all, if responsible.
- 14712 Q What is "an approachable extent at all"? A For 5 miles.
- 14713 Q That is what you say? A But, even if a place is dry and partially dusty, I would water it.
- 14714 Q What is "partially dusty"? A Take the road I was speaking of. There was no dust on the side of the road, that was only a dry road.
- 14715 Q Which one? A The one left.
- 14716 Q You asked that it was a dry road? A Yes. But the dust showed that, and did not cover down it at all.
- 14717 Q Was not one recommendation of the Rail Commission that, where dust exists, it should be periodically damped by water? A Yes.
- 14718 Q Would not dust less than 5 inches thick be favorable to ignition? A Yes, if it were dry and low.
- 14719 Q You announced that the competence of a Manager should be verified by a specially appointed Board? A That was a recommendation which was made to state our opinion upon by the Government.
- 14720 Q You stated, as a Commissioner on the Rail disaster, that "The competency of a Manager should be verified by an examination before a specially appointed Board," but you give evidence in a matter that it should not? [No answer.]
- 14721 Q You excluded men already in positions who had shown by years of service that they were competent? A Certainly.
- 14722 Q That would only apply to unknown men? A Yes—that had no qualifications.
- 14723 Q My friend? Q I will now ask you a few questions about Mr. Rogers—you appointed him, I think? A The Company did.
- 14724 Q By your side? A Yes.
- 14725 Q You know he has admitted that he knows nothing about the composition of gas? I suppose he does not.
- 14726 Q Do you know he has admitted it? A I do not think he knows anything about gas. I do not think he is capable in that respect.
- 14727 Q Do you know he admitted that he never himself took the measurement of the air in the Kamble Street? A I do not suppose he did. He has other persons to do it.
- 14728 Q Do you know he admitted that he found West-Jump and did not report it? A The question is whether black-damp should be reported.
- 14729 Q It is a serious gas—do you not know that there is a General Rule that any miner or inflammable gas shall be reported? A I think that if a Breman or Inspector found it, he should report it.
- 14730 Q That is a right that the Breman should report it? A It is right that the Breman should report it.
- 14731 Q If the Breman should report it, why not others? A The Manager need not report to himself.
- 14732 Q Mr. Roberts? The Manager does not require to report to himself.
- 14733 Q Are not the reports written as a guide for those who may visit the mine afterwards? A They are written primarily for the Manager.
- 14734 Q I suppose you know that when the Inspectors come to the mine they look at these reports? A Yes, and so.
- 14735 Q My friend? Q Do you know that Mr. Rogers admitted that he did not know what the results were in connection with the coal dust sent from Kamble to Walsby? A I think I have already told you that I know nothing whatever of the evidence that has been given either here or at Walsby.
- 14736 Q Have you made any inquiries as to the way Rogers carried out his duties as Manager? A Yes.
- 14737 Q And you are satisfied with him? A Yes.
- 14738 Q Were you satisfied with David Evans? A Yes.
- 14739 Q Were you satisfied with John Morrison? A Yes.
- 14740 Q You do not find any fault with any officer in the mine? A No.
- 14741 Q You do not blame anybody? A No.

Examined by Mr. Isaac Smith:—

- 14742 Q I want to make it clear what these notes are,—they are in type-writing? A Yes.
- 14743 Q Were they typed from notes which were written out? A From pencil notes.
- 14744 Q Who prepared them—there are three sets—1st August, 17th August, and 19th September? A For the first set, I think Mr. Rogers was the amanuensis.
- 14745 Q Tell me how he got the authority from all who signed it to connect them to those particular statements? A When statements were taken?
- 14746 Q Any statements mentioned in these notes, how did you get the authority to examine the people who afterwards signed the statement, to what it related, and, could you discuss each statement before it was put down in the notes? A Oh, yes; we were sitting down in the mine.
- 14747 Q It was done after deliberation? A Yes, after deliberation, but in the mine.
- 14748 Q You discussed what you should record to report? A Yes.
- 14749 Q Each man being taken part in the discussion, and recorded to it, that was put down on paper, it was typewritten, and you afterwards signed it? A Yes.
- 14750 Q Each man who signed these pages of notes asserted in the sworn notes made in them? A Yes.
- 14751 Q On the 16th of August there were 3 Johnstons, George Calver, E. Sellers, J. R. M. Robertson, Thomas Cook, and J. C. Jones, and, after all the signatures are placed to the statements, there is a further subscription by Mr. D. McIlwain, Mr. J. Durr and Mr. T. M. Walsby, to the effect that they are confirmed that the facts described are accurately detailed? A Yes.

Scene—Dr J. M. Robertson, 11 March, 1902

24781 Q On the 27th of August there are no signatures? A I believe I took this as my usual on that day.

24782 Q I take it then, they are your own notes? A I was taking the notes.

24783 Q On the 27th of September they are not signed? A No.

24784 Q On the top of the page of the 27th of August there are the names of J. E. M. Robertson, J. C. Lewis, R. Sellers, and William Hay,—although there are no signatures, those purport to be the notes of you four? A Yes.

24785 Q And those gentlemen besides yourselves present in this as being a correct record? A Yes.

24786 Mr. Andrew J. Q These were Mr. Robertson, and Messrs. Jones, Sellers, and Hay? A Yes; they asked me to send it to them, and then would sign it; but they did not send the copies back again.

24787 Mr. Andrew Smith J. Q At the head of the notes on 12th August you have the names of Dr. Robertson, Mr. E. Sellers, Mr. William Rogers, Mr. William Hay, Mr. Winstanley, and Mr. J. Mansfield? A Yes. Mr. Winstanley was taking no notes.

24788 Q I take it that all those people agreed to the report? A Yes.

24789 Q I had not seen this report when I examined you before, and I want to ask you now or two questions about these notes. I understood you to say, about the cause of the disaster, that you do not think you or your friends had anything to do with it? A I do not think I said that. I think I said I could not get beyond the fact that there was a quantity of carbon-monoxide in the mine.

24790 Q I am speaking of the lamp. You do not consider the lamp or candle-lamp had anything to do with it? A I think not—that had.

24791 Q You do not think there was a explosion of coal dust? A I said that I did not see any evidence of an explosion.

24792 Q I understood you to say that, in your opinion, there was neither an explosion of coal dust nor of the lamp? A That was.

24793 Q And your reason further for believing that the lamp had nothing to do with it was that you had never found it in the mine, and do not believe it was there? A And I did not see any evidence of an explosion from the lamp.

24794 Q You admit that you found fire-bricks on the three specimens of your visit? A I always admitted that, but I stated that I thought it was the product of the distribution of coal-dust.

24795 Q You told the Jury manner that you did not believe that there was any flame in the mine? A No more than little puff.

24796 Q You believe there were little puffs of actual flame? A Very much the same as Haldane describes.

24797 Q You do not believe there was actual flame in the mine at the time of the disaster? A I would not say evidence of actual flame.

24798 Q I did not ask you that. I asked you did you believe there was actual flame. I do not even know now. Do you believe there was actual flame in the mine during the time of the disaster, or immediately before it? A Presumably I have great difficulty in answering the question. I think there was a slight manifestation of coal dust.

24799 Q I am speaking of flame? A I leave you to it.

24800 Q Do not your notes of 16th August show this—

While some flame must have accompanied the blast, the most to be seen immediately in contact?

A I may explain, as I pointed out, that we saw no evidence of flame; but Mr. Sellers said that there must have been flame when there was so much carbon-monoxide.

24801 Q You accepted it? A Yes, once that, we have found out that you can have the production of carbon-monoxide without flame.

24802 Q Do you go back on what you wrote? A I would like to qualify it. At the moment it was written, none of us were aware that carbon-monoxide could be produced without flame.

24803 Q As the flame must have been considerable in amount—why did you accept in the conclusion that some flame must have accompanied it? A I was in considerable doubt whether dust-laden could be accompanied by flame, knowing that carbon-monoxide was present. My brother and myself had evidence of that the first night. Subsequently I found that carbon-monoxide could be produced without flame. I am up to that so found that out subsequently.

24804 Mr. Andrew J. Q Who is "we"? A Suppose who reads the Transactions of the Prolonged Institution of Mining Engineers.

24805 Mr. Andrew Smith J. Q You have altered your opinion as to flame? A To a slight extent.

24806 Q You do not think now that flame must have been there? A It could not necessarily have been there.

24807 Q You have seen in the coal-mining mine that flame need not necessarily be there? A I have I may say that at the corner of the last pillar there was a little red, dart, and it has occurred to me how very accurately Haldane has described it. But this was in a coal-mining mine the flame described.

24808 Q Have you discussed with Mr. Sellers or Mr. Jones the possibility of there not being any flame there? A Yes, because Mr. Sellers and Mr. Jones were turning up the transactions of the Institute.

24809 Q When did you discuss the matter with Mr. Sellers? A Fifty times—any time we were such after.

24810 Q Before his great evidence? A Fifty times before.

24811 Q Am you aware that Sellers has said and—more he described it in the notes, and since he discussed it with you—[Interposed].

24812 Mr. Andrew J. Q Discussed what?

24813 Mr. Andrew Smith J. Q Dr. Robertson understands it. Am you aware that Sellers in his evidence said, "My account—speaking of the account of the disaster—"would suppose dust explosions"? A I suppose he refers to these little puffs.

24814 Q I want to say where the logs of it occurred. Sellers has told evidence to suggest the disaster, that he cannot would suppose dust explosions? A I suppose that he considered these little puffs as explosions.

24815 Q He said that it would give a flame on the landing of No. 1, and account for the noted dust? A It must have been very slight. I cannot say there was no flame. I saw no evidence of it.

24514. Q. If you admit the probability of the presence of flame in the mine, what justification have you for saying that the coal-dust, when raised by the blast, did not explode? A. Because I am not a chemist.

24517. Q. In respect of what? A. No evidence of charring or burning—only an ooze or two grains in one corner of a pillow and none in the rest.

24518. Q. Covered by what? A. You could suppose it to be from the flame of a candle. The outstanding feature of this accident is ——— (interrupted).

24519. You have a habit of going back on anything you say.

24520. Mr. White. That is only your opinion.

24521. Mr. Bruce Smith. I want to keep on the line.

24522. Witness. I am extremely anxious to state all the facts, if I was allowed to do so, without all the cross-examination. I should like to answer questions as to facts in a more pleasant way. It seems to me as if there was persistence in this Court.

24523. Mr. Bruce Smith. I ask you, if there was flame in the mine, why it should not quite completely kindle by the blast, and you say that you are an evidence? A. Just little more, little more. I saw too little evidence.

24524. Q. You say on your notice—

An 18 Arden and an 18 were found slightly burned.

A. That was reported to me by Matheon.

24525. Q. Is it down in a report? A. Yes.

24526. I will read it to you—

—An 18 Arden and an 18 were found on the top of one of the 18s. At the 18 Arden and an 18 were found slightly burned.

A. It was reported to me. As a matter of fact, I saw Arden myself.

24527. Mr. Justice. Q. An interesting party found them? A. Yes.

24528. Mr. Bruce Smith. It is in the notes, and signed by them.

24529. Mr. Robertson. The ladies were covered on the Saturday.

24530. Witness. Arden was there on the Saturday morning.

24531. Mr. Bruce Smith. Q. On 25th August, in the first part of your notes, there is the following:—

To collect dust from various points and additional 18s shown of here and there.

A. That was to see if we could see anything.

24532. Q. What had you got beforehand? A. I do not think we got any.

24533. Q. Then the word "additional" is not wanted? A. No.

24534. Q. It is redundant? A. Yes.

24535. Q. There was not any reason for its being there at all? A. No.

24536. Q. You admit that you found what dust at the last cut-through there? A. A little coiled dust at the corner of the back heading and the cut-through.

24537. Q. You say—

Absolutely no evidence of fire or what dust, beyond last cut-through in mine.

Up to there you did find it? A. It is not very accurate, it was written down in the notes.

24538. Q. But that was written after deliberate discussion, when you returned from the investigation? A. Yes.

24539. Q. And you agree that Bellers said that they got you with a safety-lamp when you were present? A. No, they got me on.

24540. Q. Last notice? A. On what day was it?

24541. Q. On the 24th of September, when that you got traces of gas at Stafford's lot? A. We got none.

24542. Mr. White. The witness says that you did not agree with him.

24543. Mr. Bruce Smith. Q. What do you understand by "coiled dust"? A. Coiled dust.

24544. Q. And you agree that Mr. Bellers said that the corner in the back heading was cleared? A. If he said so it would not be accurate. I have a small piece of it here.

24545. Q. He said that the side of the back was considerably burned? A. Slightly burned.

24546. Q. He said that the splintering was here? A. It went no distance into the prop at all. Here is a little piece of the corner from the back heading. The corner is not destroyed. I should like to hand it to the Court. This is a little piece from a little strip between last prop. And here is a piece of corner the substance of which is absolutely destroyed.

24547. Mr. Justice. Q. Is that taken off the bottom? A. It is off the corner on the entrance to the back heading through the cut-through.

24548. Mr. Bruce Smith. Q. Is that taken by yourself? A. Yes. If you had a little piece of this other corner, you will find that it will be all white, but this piece of corner came from a point in Kewick Mine 1½ mile away, and was not there once it. The doctor (J. H. Macdonald, Esq. 18.)

24549. Q. In this statement by Mr. Hen in accordance with the conclusions which you yourself arrived at. Speaking of the disaster, he says, "I have no doubt there was flame in this disaster." No, it is altogether than I would put it.

24550. Q. He was wrong.

—Q. Have you any doubt that flame was travelling? A. Something travelled.

—Q. Have you any doubt that flame travelled at that disaster? A. There must have been heat to cause it.

—Q. I am talking about here? A. I was not there in any; but there must have been heat with these was burning.

—Q. Have you any doubt at all? A. No, I have not.

A. No, it is stronger than I would put it.

24551. Q. Mr. Justice was with you, and I will ask you whether his statement is in keeping with the evidence you arrived at. He said that he was willing to admit that there was an explosion of fire-damp, that he believed that gas would travel from the coal through want of natural atmospheric pressure, and that it was an explosion of gas that killed the men who? A. That is not in keeping with the deliberate conclusions that we all arrived at.

24552. Q. You told Mr. Lyne that you had written to Mr. T. R. Pinner, of Newcastle-on-Tyne, and gave him full particulars of the disaster? A. Yes.

Witness—Mr. J. B. W. Robertson, 8 March, 1903.

24153. Have you received a reply from him? Yes.
 24154. Q With your pardon his letter? A I will read it to you, I think.
 24155. Q Mr. Foster is a man who has had very great experience in coal-mining matters? A Yes, and his father and grandfather before him.
 24156. Q You regard his opinion as being valuable? A Yes.
 24157. Q You stated the name to him? What does he say in reply? A His letter is dated from No. 3, Robinsons, Newcastle-on-Tyne, 22nd October, 1902, and he says—

[I have read your letter with interest, and it seems to me that the more of the evidence, is made difficult to explain satisfactorily. Mr. Foster seems to me to read the account carefully, and interest me that the possibility of an explosion being caused by the compression of the air has been raised in this country, and that Mr. Dickson, who was with him in the last explosion at Morice, was much impressed with the idea. These experiments were done at last made with the idea of proving the possibility of such an explosion, which Mr. Foster mentions to have read of, and has been trying to put his head upon, but as he confesses himself. I am afraid, without more satisfactory evidence of the possibility of your suggestion it would be very difficult to carry the point. It was thought by the 'Coal-mining Committee' of I remember, that an explosion of coal-dust, pure and simple, would not be caused without the being aided by a flame not that, on examining of this description, and, if that, as I can gather, there does not appear to have been any evidence of this sort.

24158. Q You suggested something as to the cause? A I told him I could see no possible cause for it. I wanted him to put his right. I was in such doubts of mind that I could not think properly. If he could put me right I should feel obliged.

24159. Q You do not regard his letter as an endorsement of your view? A Not quite.

24160. Q I want to come now to an entirely different matter? You noticed to Mr. Lough that up to this meeting you did not know there had been a previous fall of 2 feet 6 inches prior to the last fall? A No, I did not hear of it.

24161. Q You have no reason to doubt it, when Morrison swore to it? A I could not doubt Morrison; I have known him all my life.

24162. Q He stated that there was a previous fall, and as I understood from you that you told the Commission that if there had been a previous fall of 2 feet 6 inches before the explosion, it would make no difference? A I do not think so.

24163. Q Which is the most likely to be the larger fall—the first or the second? A The second.

24164. Q Supposing the first fall had fallen in the same way that the second one did, would you not expect that in previous a great would have? A No. I take it that Morrison only meant that a portion of the roof would come down, it would not come down 2 feet 6 inches there.

24165. Q Suppose you accept the statement? A I hardly think so.

24166. Q I am asking you to assume that 2 feet 6 inches had fallen the week before. Assuming, also, that it fell in the same complete way you assume the second fall to have fallen, would it not have produced a great wind blast? A It might, or it might not, it would depend how it fell.

24167. Q You assume that the second fall fell on a kiln? A In all appearance it has done so.

24168. Q You give an answer to Mr. Lough at this meeting, that, in order to produce certain effects, the flame would have to go over a large part of the mine, and have certain inflammable things extended? A That was in connection with the question of lighting.

24169. Q That is a common practice in explosion? A I cannot say, but it may be.

24170. Q You know that the last one of the reports is that the flame does so? A It is beyond the condition, as it was, wherever and what exists.

24171. Q You heard Mr. Robertson say that he made an experiment, in which the flame passed over a piece of newspaper? — [No answer.]

24172. Mr. Robertson: Yes.

24173. Witness: It will depend on circumstances.

24174. Q The fact that the flame did go over certain inflammable things, and struck another inflammable thing which it burned, is an argument against the flame having passed through the roadway? A I cannot answer it.

24175. Q You had never heard of this pipe which had been found, until all the names were committed to paper? A It was afterwards.

24176. Q Who told you of it? A I was told when I was down at the mine.

24177. Q You asked the assistant examination with Morrison when you were making these notes? A No.

24178. Morrison was one of the party? A I have not seen Morrison since.

24179. Q You would come across Morrison frequently during the inspection you were making, could he mention the pipe? A No.

24180. Q Did you cross across Scotland? A No, he was not in the mine then, he was at Glasgow.

24181. Q Were you ever told by letter? A Our Kanika people are not much at writing letters. You have to keep notes out of them.

24182. Q You consider that pipe is a sufficient thing? A I do. I told Mr. Robertson that I thought the fracture was set on fire by someone smoking, before the pipe was found.

24183. Q After the pipe was found, would you attribute it to—? A Smoking.

24184. Q Would it not strike you as a great coincidence? A No, I have seen many instances of hearings being found.

24185. Q Do you know that in the Dudley explosion there were two fires afterwards like this? A I think there were a good number of fires there among coal and timber.

24186. Q Does it not occur to you to attribute the fire at the explosion to the explosion? A No.

24187. Q Why? A I do not understand you.

24188. Q Would it not occur to you, apart from the finding of the pipe, to assign that fire to the explosion? A Where I was at that time, I formed my judgment entirely, and I have never varied it. I told Mr. Atkinson within an hour afterwards that someone had been smoking and lit the lantern.

24189. Q This makes no difference in your own impression that there was no flame? A No.

24190. Q Supposing you thought there was flame? A I would not think it would be due to the fire at all.

24191. Q Although you know there were many fires in the Dudley mine? A Among the coal-dust and timber.

[The Commission, at 4 p.m., adjourned until 10 o'clock the following morning.]

TUESDAY, 10 MARCH, 1903, 10 a.m.

[The Commission met at the Supreme Court, Kingswood, Sydney.]

Present:—

O. E. R. MURRAY, Esq., D.C.J. (PRESIDENT).

B. A. W. ROBERTSON, Esq., Commissioner. | D. BITCHIE, Esq., Commissioner.

Mr Bruce Smith, Barrister-at-Law, instructed by Mr Wood, Crown Solicitor's Office, appeared on behalf of the Crown.

Mr A. A. Johnson, Chief Inspector of Coalmines, assisted Mr Bruce Smith.

Mr A. A. Lynght, Solicitor, appeared on behalf of:—

- (a) the representatives of General miners, including, *etc.*, [victims of the explosion];
- (b) the employees of the Mount Kembla Colliery (miners, workmen, *etc.*), and
- (c) the Harcourt Colliery Employees' Association (the Southern Mines Union).

Mr C. C. Wade, Barrister-at-Law, instructed by Messrs. Curran and Barry, Solicitors, was present on behalf of the Mount Kembla Coal and Oil Company (Proprietors of the Mount Kembla Mine).

[Mr J. G. Clark, Secretary to the Commission, was present to take shorthand notes of the evidence and proceedings.]

[His Honor handed to Mr Lynght and Mr Bruce Smith a letter received from Mr Josephine May, giving particulars of what Mr May considered to be the operation, *as*, in her case, of happening on them being. His Honor asked whether Mr Lynght or Mr Bruce Smith wished to call Mr May to give evidence on this point. Both Mr Lynght and Mr Bruce Smith said that they were willing, in the latter case which they would desire to supplement the evidence already adduced.]

Mr J. R. W. ROBERTSON, previously sworn, was recalled, and further examined, as under:—

Examination by Mr Lynght:—

24002-3. Q Have you the figures this morning by which you put that 350 cubic feet per hour? A I have not made them up. I will do so. It will only take a few minutes. I will do it before I leave the Court.

24004. Q Could you do it now? A I would rather hand it in.

Examination by His Honor:—

24005. Q There is one phase of the matter that has struck me, on the question of the probability of an instantaneous fall, and I would like to ask you a few questions about it. First of all, I think it may be fairly taken, may it not, that 35 cubic inches of average rock weigh about a pound, that is to say, I put in height of the average strata over the roof of the mine would represent, at actual weight, about 1 lb. per cubic inch superficially? A Rather more than that.

24006. Q How much? A Oh, probably about one-tenth more than that. I should imagine that it would be 150 lbs. or so in the cubic foot, roughly.

24007. Q One pound would be about 164? A One pound would be 164.

24008. Q Oh, yes, of course. Well, so far as the pressure of the air is concerned, as long as the rock is in an absolutely uncrumpled state, the whole pressure of the air operates in support of the roof, that is to say, as far as its resistance with the superincumbent strata is concerned, as long as the superincumbent strata can be taken as absolutely rigid the connection of the roof with the superincumbent strata is assisted by the pressure of the air? A Yes, that is the case all over the mine.

24009. Q Yes, that is so necessarily? A Yes.

24010. Q Well, that pressure may be taken, allowing for the pressure of tension of air in westerly winds, and allowing for any cyclonic conditions, and allowing also for the strike of the blast, as at least 14 lbs. in the square inch? A Yes, there or thereabouts. Yes, about 14 lbs. in the square inch.

24011. Q We can take 14 lbs. as a minimum? A Well, I do not know that I would go as low as 14 lbs.

24012. Q We may take it as a minimum? A Yes, an absolute minimum. The strata is about 500 and odd feet. I did not take that into account.

24013. Q Then, you say, you have also the tensile strength of the rock, which may be taken, I suppose, to be able to support at least 8 feet or so of itself—do you think it would? A I could not say anything about that.

24014. Q Well, it is a pretty considerable element, is it not? A The roof was entirely free on, you may say, three miles, and only held by a solid rib of coal on the road side.

24015. Q Well, if the roof is not free. I am taking it as a hanging roof, but not absolutely free. Before it was begun to let go at any point you must have a weight in excess of this 14 lbs. in the square inch, and in excess also of the tensile strength? A Yes, no doubt.

24016. Q You must have that? A Yes, no doubt about that.

24017. Q Well, then, is it not clear that you cannot arrive, going upwards, at the point at which, by some weight, the roof will begin to let go, until you reach something approaching 20 feet from the under surface of the roof? A Oh, I think it was rather more than that.

24018. Q You think it would be more than that? A Oh, yes, I think so. I think it was more than that.

24019. Q I am not speaking about what was—I am speaking about what would be. You see, you have the roof supported by the tensile strength of the coal added to the pressure of the air. It is hanging, therefore, at the superincumbent strata, and it cannot begin to let go unless some other element comes in, such as the hydrostatic pressure of water, which, I suppose, may be rounded out as improbable. It cannot begin to let go at any point except at a point—I am leaving out one element which I am going to suggest to you—weight would be something like at least 20 feet from the under surface of the rock, its weight at least, the superincumbent strata being taken to be absolutely rigid, would not allow it to let go except at a point some reasonable distance—I suggested about 20 feet—from the under surface of the roof?

Witness—Dr. J. F. M. Robinson, 52 March, 1935.

19017? Is not that so as a mere mechanical fact, because it is balanced by the pressure of the air underneath, and it is also balanced by the gravity action on the rock above? A I do not quite see that the air helps in balance it, for this reason: that the air pressure on the top of that rock, just as it does on the bottom.

19018 Q I am going to suggest that to you: I am supposing that the superimposed strata, the great thickness overhead, was absolutely rigid? A Yes, but there is no doubt that that was not so; these follow the 4th flight disturbed the surface, came up to the surface.

19019 Q Now, there is another element of support, by the way, in addition to these, which would probably make that 50 feet a good deal more—that is, the lateral support of the surrounding rocks, which may be called friction? A I did not know you.

19020 Q The support of the surrounding rocks. If you consider a body which is going to slip down, you will see that before it can slip down it must overcome the friction of the sides? A It was all down.

19021 Q But supposing that, before the roof came down, you consider the possibility of its coming down, it would not only overcome the direct lateral strength of the rock itself, but it must also overcome the lateral support, that is the friction, of the surrounding rock? A But there was no surrounding rock, it was all down, the side were loose, and natural cleavage planes over the side.

19024 Q Yes, but I mean supposing you are considering the probability of a sudden fall. Well, that is a smaller element in proportion to the greater size of the area which is going to fall, because the friction on the sides varies with the lateral measurements, while the weight for a given height of rock varies with the square of these lateral measurements; that is clear enough. But, anyhow, that is a considerable element. That being so, how can a fall begin at any height less than perhaps 20 feet or 30 feet from the surface unless you introduce another element? Now, I am going to suggest that, or not the element which begins to cause a fall really the friction, probably, of the whole of the superimposed strata? A The whole of the superimposed strata. Yes, I think, it is all on one continuous piece. All these rocks have lines of weakness, but — [Interposed]

19025 Mr. Robinson. [Q Cleavage? A Cleavage.

19026 Mr. Hanson. [Q Stratification? A No, the stratification are broken by lines of cleavage that go right through them, and that, of course, weakens the roof in a large extent, in fact, it means of the roof-falls, in all the real fields everywhere, these lines of cleavage are — [Interposed]

19027 Q Admitting the lines of cleavage, they do not affect the question of the lateral friction pressure; they do not alter the introduction of air pressure, although they appear to the strata of the rock? A Oh, yes, the lines of cleavage would make it less a hindrance. There is nothing more serious in writing real than, when one of these lines of cleavage is relieved, that a piece just drops out.

19028 Q Yes, that is point of fact, explains a good deal in these cases where the lines of cleavage govern the line of weakness—the weakness of the superimposed strata? A That is a view of the case that I did not present until now, but I think, if your Honor will just look at it, you will see that the air pressure is introduced, somewhat on that roof had come away, and had been disturbed to the surface.

19029 Q I am not speaking of any particular roof, but I am speaking of the general question of when a roof will begin to fall. Now, you can easily see that, on a single mechanical principle, as long as you keep your superimposed strata absolutely rigid and without friction, you cannot mechanically have a fall even of 5 or 6 feet. Do not you see that it is impossible? But you can easily see that, that the slightest, and absolutely unappreciable—on a macroscopic—friction of the whole superimposed rocks will have nearly equal, it is a break, which will allow us to get in over the top of the rock which is to fall, and that will release altogether the resistance by the pressure of the air underneath, and there would be pressure on each side. Looking at it from that point of view, and not a fact that every fall is a mine, unless it happens to be an enormous fall of 50 or 60 feet thick in one piece, and, inside a fraction of the superimposed rocks in order to allow it to start at all? A In this case we know that the rocks were not only in a state of friction, but that the friction had been so great that they actually broke, and broke up to the surface.

19030 Q Is this fall? A Not after this fall only, but before.

19031 Q Before it? A Yes, the surface was disturbed.

19032 Q That being so, it is really possible that a fall of rock can take place without the fall itself being broken across in a great many different places and pretty well fractured throughout, being, in point of fact, a curve, and also having very little elasticity in any fracture in case of rupture? A In this case, Your Honor, I saw it. It was not clean sweep, and there were only a few broken between the edge of the roof and the immediate base.

19033 Q Where did you look up and see that? A At the entrance to the 4th flight road.

19034 Q Looking right up? A Yes, when the broken was put on, so that we could get up there easily.

19035 Q How far did you see that? A I am quite satisfied that I could see over 20 feet, but I did not see the end of it.

19036 Q Of the fracture or of the fall? A It all came down in a body, and apparently great flags of stone.

19037 Q That it was all in flags and broken pieces? A No, flags about probably 1 foot to 12 inches thick.

19038 Q But all that comes back to this, that, in point of fact, it is a mechanical impossibility to get any great slab of rock, extending pretty well all over where the basement pillars were, to fall in one unbroken mass or mass? A I could not say that, because I know in the contrary. I know that it would be released by a large number of these lines of cleavage. These cleavages down in the north are every 3 or 4 feet.

19039 Q Well, you know it would be broken all over? A Yes, practically, but not on the main road, where a smaller roof fell after the fall, very likely after the compression and the removal of the natural supports, the timber and such like, we measured one of those flags, and the one seemed only to be disturbed by the use of the road, and it was 12) yards by 14, about as long as the room is broad.

19040 Q And this fell in one piece? A That was all in one piece.

19041 Q And what thickness? A About 1 foot or 12 inches thick, probably.

19042 Q About 1 foot or 12 inches thick only? A Yes, of course, it is in beds, and it would separate after it fell.

19043 Q It would split?

19044 Mr. Robinson. [Q Did you say it would break after it fell? A It was about 6 or 7 feet high. It was about the height of the road.

24015 Q. I understood you to say that you forced one slab 12½ yards by 5½ yards? A. Yes, one slab.
24016 Q. Then, I understood you to say it would break about 5½ ft. A. Really, those are questions an aerial man could answer.

24017 Q. I want you to reconcile the two? [*Robertson did not answer.*]

24018 Mr. Howe: Take the greatest fall for a given distance—would not it come to be, in effect, one great, but not instantaneous, storm of air, in you might call it a great storm of rock, in the course of the falling of which the rain—say as formed up above—would be coming incessantly down from the pressure of the air opposed down below by the falling mass, compressing, in part at least, for the enormous pressure which was being put on the air down below, by the weight of the air from below up above, though no doubt making a large quantity of the air which had not time to distribute itself into the new rainstorm, but making this expelling it at one great body, so as a large proportion of one great body of the air, in almost an instant of time? A. I do not propose to say that it would expel all the air, but I think, from the nature of the rock that fell, and from the large solid shape that we could see, it would show a similar proportion of the air taken it to be driven into the intermediate than if it had been such little rock.

24019 Q. Oh, there would be partial waves in places, no doubt? A. Yes, but I am quite sure, even allowing for this, that it would not displace the whole of the air; that is to say, that a portion would work round and get over the top and through the crevices.

24020 Q. And then, again, you say, do you not, that the great fall or whatever it is, is, mechanically, a fall beginning from rest, gradually acquiring motion, and is a feet of descent fall, it would require a rate of about 5 feet a second, and that would probably be the best of the fall? A. Yes, I think so. These are the points that we can never discuss. We can only speculate upon them, but I put it down, myself, that about three-quarters of a second would be the time. I admit it is one of those points we can never ascertain.

24021 Q. In calculating how long the fall would take to take place, did you take into account the retarding effect of the air down below, which your calculation assumes must have been enormously compressed, and must have, therefore, been made much more enormously retarding? A. Your Honor, the calculation necessarily was, in crude, because, as I say, we can never ascertain the factors. We can never get at the actual conditions. I only made the calculation to assure myself that, when I asked the question of my friend in the North of England, I would not be asking an absurdity, and he recognized that, and stated that Mr. Robertson was quite correct upon a similar opinion, and had put it forward in the course of some of his lectures that could not otherwise be satisfactorily explained.

24022 Q. Of course, his lecture does not go for very much? A. Oh no, further than that I was thinking on the same lines, unconsciously, as Mr. Robertson—nothing more than that.

24023 Q. Then again, as far as shock is concerned, you suggested that a shock of air, equivalent as from a fall or a blow, will cause fractures at a very long distance, and may cause the breaking down of a wall over it. A. Yes.

24024 Q. But that shock is quite different from the compression necessary to cause a sudden exhibition of heat, to do that you must get an actual compression of a body of air? A. Oh, yes, the two are quite different.

24025 Q. Of course, you might understand a shock at a distance of half a mile throwing down a brick chimney, for instance? A. Yes.

24026 Q. And yet that shock would not have the slightest effect in raising temperature? A. Oh, yes, it need not necessarily be accompanied by the transmission of an actual fire. It is merely the transmission of waves of air. In the same way I have often seen brick walls that have actually crumpled all ways, made perfectly level, by the violence of running horses in racing holes.

24027 Q. An old public house was knocked down in Sydney once by a clap of thunder without being struck by lightning? A. Yes, but this was by the actual vibration shaking the walls. The walls were knocked perfectly loose.

24028 Q. So that it all comes back again to this, that the calculation is in one which, although certainly the sudden shattering down of the fall, as it were, of a mass would, if it could happen all at once, completely leave out the air through an opening at a most enormous rate, still there are no many answers due that it is very difficult to say just give that the calculation could be approximately correct? A. I must admit that I would leave that to physicists who have the proper instruments and who have devoted their lives to it. It is not for me to do that. Still, I only suggest that it is quite reasonable and quite feasible, and, moreover, that it is a suggestion that is rapidly getting ground among the leading lights at Home.

24029 Q. The suggestion that falls have directly caused earthquakes? A. Yes.

24030 Mr. Howe: Smith: It ought to occur to Dr. Robertson that, before he propounds a theory of that kind, it is his duty to ascertain its feasibility.

24031 Mr. Howe: I understood you are an engineer, Dr. Robertson? A. Oh, yes.

24032 Q. Have you gone through a regular course of engineering? A. Oh, yes.

24033 Q. Involving the higher mathematics? A. Oh, well, not, perhaps, the higher mathematics, meaning engineering does not embrace that.

24034 Q. Such ordinary mathematics as runs up to and includes the differential calculus? A. No, that is not included in engineering, properly, that is more civil engineering.

24035 Q. I thought that the differential calculus was looked upon as a sort of thing for average engineers to play with. I think I would play with it myself.

24036 Mr. Howe: Smith: In those colleges of yours, you and the gentlemen who studied the subject were to the conclusion that the evidence of force increased as they got out? A. Well, apparently.

24037 Q. That is in your note? A. Apparently.

24038 Q. That the fire decreased as you got further, instead of increasing, it has an important bearing on your theory? A. Robert? I did not whether that was due to the weaker road along the roads, or whether it was due to the increased velocity of the blast, is a different matter.

24039 Mr. Howe: I thought you suggested that there was an increase of energy though the compression among the temperatures sufficiently high to finally cause something like an explosion of resistance.

24040 Mr. Howe: Smith: No, no explosion, he will not admit that.

24041 Mr. Howe: Do not you admit that there was an explosion of combustion? A. I cannot see any appearance of an explosion at all.

FOSTER—By J. B. M. Robertson, 30 March, 1903.

24591 Q Then, if there was no explosion but a simple explosion, must it not necessarily, and absolutely necessarily, follow that, except in the case of purely random against a dead end, the force of the explosion must diminish as the distance extends so as to be absolutely necessary result? A I cannot say whether the force was concentrated on the cabin or not. The damage was considerably greater some distance away from the old engine, but whether that was due to the weakest part among the falls and among the falls agreed that the road went through, or — I do not know what it was due to. The falls were certainly greater, probably after 100 yards from the old engine, but I do not know that that is any proof of the acceleration of the force.

24592 Q Then it appears that, not only does the force appear to have been accelerated, but also that a large quantity of carbon-monoxide was evidently driven outwards as far as the junction of the two main roads of the mine, and this was in the main tunnel up towards the open shaft towards the furnace set in the air? A Not so much went down there as from the mine.

24593 Q Well, it went up there anyhow? A I do not know that there was so much there as came round the corner of the vestibule.

24594 Q Well, there was a large quantity of carbon-monoxide generated, and it could only be caused by the destruction of the fuel? A It just occurs to me that the gas was taken out of that road (referring to the No. 1 main level) partly off from the main level on them. It shows me very different in all, it was due to the fact that the gas was contained through some more or another at one particular point. The gas was off all downed, permeated every side, and, in any case where the force was taken away, or the action of the rail had been taken away by the force of the locomotive, the heat was different, but in all the cases where the rails were of equal strength they were equally hot, so that, in thinking it over I do not see that that showed any evidence of increased velocity.

24595 Mr. Justice Q In those cases that the force had been the same and had not weakened? A It shows the same, but not any increase in force.

24596 Mr. Justice Q But you say it would explain in the usually decreasing energy, do not you not? If you compress gas—by gas, of course, I mean air, which is a gas—and then let it out through a tube after compression, the effect, the compression, as it passes along the tube, must necessarily, absolutely necessarily, decrease. You have a supply of force from behind—you simply have one shot, as it were—you have no such thing as force supplying force behind. If you had no such thing as force supplying force behind, the gas, you would have a continuous supply of force, but you have not that, you have compressed air continuously expanding itself, and therefore the force would be less and less? A Probably it would be less.

Mr. Justice further questions just put me mind of those gases. We put them on top of one another on the surface just to see, and we found that they were perfectly all hot with, as nearly as possible, the same force, any difference was due to the weighing of the gas.

24597 Q Well, the fact that the force continued equal, if it did continue equal, shows that there was a reinforcement on it went outwards? A That, of course, I could not say?

24598 Q Every gas that struck represents an expenditure of force?

24599 Mr. Justice Q Did not these men people testify to that fact?

As the evidence then is abundant that the blast was developing in intensity as it proceeded outwards, and being confined that we had discovered the force.

—[Retrieved] A Oh, they did not travel all the main No. 1 engine at all. They went to wait beyond the point where the gas was first and the road down. Of course, that expression of opinion was put down in the mine, and without any particular consideration.

24600 Q I understood that you told me that the whole of the force was put down since several deliberation and again? A Yes, it was in the case as possible under the circumstances of examining the mine.

24601 Some of the kind are not very things. I would like your Honor just to have to the whole of the evidence, because it shows, in my opinion, that the discovery of the increased intensity of the force outwards led them to doubt their theory.

24602 Witness There was no theory at all then.

24603 Mr. Justice Q [Referred from your finding as to the witness on the previous day]—

As the evidence was abundant that the blast was developing in intensity as it proceeded outwards, and being confined that we had discovered the force from whence the force proceeded, we thought it had reason to further extend the inquiry, and proceeded to the surface by the No. 1 winding road.

24604 Mr. Justice Q Why was it inadvisable? A There was no theory at all then. There was a simple examination of the mine. It really seems to me, that the evidence of force was so abundant from that point outwards, and the force in fact, that we thought there was no great object to be gained by travelling along a road that was proved to be one more of falls.

24605 Mr. Justice Q I think, your Honor, as these matters are to be referred to again, Mr. Robertson might be asked to leave them in charge of Mr. Justice, because there are several points there that I have directed attention to. [With Mr. Robertson's consent the case was handed to the Secretary.]

Re-examination by Mr. Wells—

24606 Q What was the nature of the damage outwards from the telephone cabin? A The roof down.

24607 Q The roof fell? A Yes, evidently caused by the knocking out of the girders, that were supported by it at each end.

24608 Q And would the extent of the falls then depend on the nature of the roof? A Yes, there was a case of rather fairly good timber, and the roof was much more than over the proximity of the mine.

24609 Q Trained that the roof, as the struts, had broken up to the surface? A Destroyed the surface, yes.

24610 Q Did you have any indication of that, any actual proof? A Oh, yes, it brought down the surface where we had to cut down to take the surface water off. The mine is not very deep there.

24611 Q You were asked yesterday if you had made inquiry as to whether Mr. Rogers had carried out his duties. Do you remember to be asked that question by Mr. Lyngby?

24612 Mr. Lyngby I did not ask that question.

24613 Mr. Justice Q Mr. Justice asked you if you had made inquiry as to whether Mr. Rogers had carried out his duties? A I am quite satisfied.

24614 Mr. Justice Q I did not ask that question. I asked was he satisfied with what Mr. Rogers and other people have done.

24090. *Mr. Wade* | Q Now, I want to ask you, as this question has been put by Mr. Lynght, what opinion did you form with regard to Mr. Rogers as Manager? A I have not been disappointed with him. I was told, before he got the management, that I should find that he would be very anxious and attentive to his duties, and quite able; and I have not been disappointed. He has been a careful, methodical, systematic man; not a business man at all, but, as the performance of his duties, he has been very careful and conscientious very cautious man, and exceedingly orderly and methodical.

24091. Q Would you agree with the statement of Mr. Kenyon's? Mr. Rogers is an able and experienced man, cautious, reliable, and conscientious in the discharge of his duties. [Interpreted.]

24092. *Mr. Bruce Smith* | Does Your Honor think this inquiry was accurate for going into the aspect of the matter?

24093. *Mr. Wade* | Why do you want to exclude it? How can it possibly affect you, you appear to be in a neutral position.

24094. *Mr. Bruce Smith* | I ask His Honor whether it is really proper to the inquiry—the opinion of the witness as to the statement of a second man with regard to the character of a third.

24095. *Mr. Wade* | I have kept clear of these questions until Mr. Lynght introduced the matter positively a second time.

24096. *His Honor* | The question is when Dr. Robertson thinks of Mr. Rogers's opinion of Mr. Rogers.

24097. *Mr. Wade* | No, it is a question whether he agrees with that definition of Mr. Rogers.

24098. *Mr. Lynght* | I submit to your Honor that it does not matter whether he does or not. It is not for the witness to give an opinion in the Rogers's opinion, but to give his own opinion.

24099. *His Honor* | He gives his own opinion? Mr. Rogers was exceedingly anxious for him, and under his eye for years.

24100. *Mr. Lynght* | He has not already that he was satisfied with everything that Mr. Rogers did.

24101. *Mr. Wade* | Q Now, you were asked a number of questions about the evidence given by these medical men, do you remember? A Yes, I think so.

24102. Q You were asked then, whether, if you had been told by a medical man that he came to the conclusion that the subcutaneous of having been caused by a fever of high temperature, would that effect your opinion. Now, supposing you found that some medical men did not believe in subcutaneous spontaneously, and did not know anything about it, would that tend to add value to his opinion, or to weaken it?

24103. *Mr. Bruce Smith* | But you are questioning part of the witness's evidence—why not read what he said?

24104. *Mr. Wade* | Q Suppose he says that, "I do not believe in spontaneous subcutaneous, I do not know anything about it." I do not know then if you subject, and he agrees that it will give off oxygen? A That is in a way with some other medical men who said that he did not know what carbon-monoxide was, and would not tell him what it was.

24105. *Mr. Lynght* | I submit that then we really wasting the time of the Commission, putting in this witness, who does not give us a chemical authority, those questions.

24106. *His Honor* | Mr. Wade, it is much better to argue those matters before the Commission. They to get them in by asking Dr. Robertson what he knows. I may think it is best to put him on the stand.

24107. *Mr. Wade* | Your Honor, Mr. Bruce Smith asked this witness certain questions from a part of the evidence, and I intend to have the whole of the evidence put before the witness.

24108. *His Honor* | You can put it before the Commission. It is much better to do that than to go in indirectly to accuse of the misstatement of two witness subcutaneous, he is a expert, &c., although Dr. Robertson is very modest as to his position and qualifications as an expert of course he is an expert. If he were made a thorough expert as some of the University Professors, such questions as these, even then, might be objectionable, but this would come with some force, but in the case of Dr. Robertson, they come, he himself will admit, will not say quite so, but very little effect. If you wish to ask Dr. Robertson medical expert questions, I believe that he would have a right to express an opinion, but that is because I think he knows no medical one.

24109. *Mr. Bruce Smith* | No doubt, but certain witnesses have given their opinion as to whether a man's skin had been burnt, as has appeared from being affected by great heat, and now he is asked by Mr. Wade whether he has that he knows that one of these witnesses knew nothing of spontaneous combustion, would affect his opinion of the qualification of the witness or any whether a man's skin had been burnt?

24110. *His Honor* | That is a question to be put before the Commission directly, and not indirectly by the examination of another witness.

24111. *Mr. Wade* | I submit, your Honor, that the strict legal course would be to do that, but I did not understand that the Commission would have any objection.

24112. *His Honor* | The Commission will not desire to hear any addresses. The Commission will leave it to Counsel in any matter they wish to address or not, and of course they will ask Counsel to put it as short as possible, if they do address.

24113. *Mr. Wade* | Well then, your Honor, if it comes to dealing with the medical evidence in detail it must go to great length.

24114. *His Honor* | The most useful way would be to mark off certain passages and call the attention of the Commission to them, stating the points why you call attention to them. Calling for those questions of me kept us such of them as I call attention the first of calling attention to them.

24115. *Mr. Wade* | Very well, Your Honor, I will take that course, if necessary.

24116. Q You were asked some questions about death's door, supposing you have an explosion which blows out one door, would the probability be that it would blow out both the doors? A The chances are that it would blow out both doors.

24117. Q Then where does the advantage come in, in the ordinary working of the mine? A Yes, in the ordinary working of the mine. If you are hunted by gas, and it is exhausted out, then, naturally, the less communication you have between the surface and one destroyed and the others in the mine the better.

24118. Q It prevents leakage? A Yes, it prevents leakage.

24119. Q But it was special protection in case of an actual explosion? A No, they would not be any special protection.

Witness—Dr. J. E. M. Robertson, 25 March, 1906.

25010 Q. Of course you have had hundreds of falls of coal, I suppose, in Kentucky—may be thousands—and you were not at any report of gas being heard after the coal had fallen in Kentucky? A. No, never; and I have examined after a large fall on the shaft down, when we examined the pillars there, and I found no gas. In fact I do not think it is a coal that could contain gas, in a direct solid condition, it is as near as possible solid aerolite; there is an bituminous matter in the rock.

25011 Q. You spoke, just now, about waves of velocity caused by a shock—would you get those waves on the result of a fall and the displacement of air? A. Oh, yes.

25012 Q. Do you know what pace those waves travel at? A. About 1,200 or 1,300 feet a second.

25013 Mr. Dixon? Q. About the same pace at night? A. About the same.

25014 Mr. Dixon? Q. Somewhere about a mile or five seconds, is it not? A. Yes, under a mile in five seconds.

25015 Q. Can you say what effect you think there would have on, say, a light at the 4th Light? A. It would be extinguished, a sharp wave would extinguish it.

25016 Q. Would that be quite apart from the actual shock of air which came out of the 4th Light? A. It might be.

25017 Q. And, if the air were travelling at 700 miles per hour, of course there would be pretty well the same pace? A. Yes. In any case it would carry the same air before it as an enormous pace, and I do not see any possibility of any light existing in the main road at all; in fact the lights were put out in some of the workings a considerable distance off the No. 1, and the miners left their lamps and made their escape.

Continued by Mr. Robertson:—

25018 Q. In the 4th Light—that is, the roadway from the fall to the back heading—there was at least one prop, you admit, found in the back heading afterwards? A. Leaving aside—yes.

25019 Q. How do you account for that prop being found there at all, having seen two or three, in a roadway through which a blast had passed with a velocity of 700 miles per hour? A. I do not know. I understand that there were two props with a cross member put there in—I understand that there were two or three props put there to support the lantern. Of course, they would be wedged tight; but I only see the one in the picture that you show, and I can give no explanation of it.

25020 Q. Well, we will stick to the one—the remark that the velocity of 700 miles per hour reached the back heading, there would be an expansion of the compressed air and a reduction of velocity? A. At the back heading?

25021 Q. Yes? A. There were all the appearances of an enormous force outside—lots of stones, and rubbish, and timber, and props driven into the corners of the road.

25022 Q. I know that, but when the velocity of 700 miles per hour reached the back heading it would spread in other two directions? A. Yes, but it evidently did not spread very much. I think that you can see other evidence coming out of the flat out through cuttings from the 4th Light, but not beyond.

25023 Q. Well then, when it reached the main heading, unquestionably, according to your own evidence, it spread outwards and outwards? A. It went both outwards and outwards. There were distinct, considerable eruptions of dust.

25024 Q. Then the velocity would be very much decreased—decreased by half—neglecting the return airway? A. Probably.

25025 Q. And yet this reduced velocity going outwards, in your opinion, appeared for the heading of less force, and the destruction generally, right out to the tunnel mouth? A. Yes.

25026 Q. Well, if there was such destruction with a reduced velocity of, say, 350 miles per hour, how is it that anything was left in the 4th Light roadway at all? A. Oh, towards the back, I suppose, the velocity would be a little less. I cannot answer—yes are doing engines. I am only stating facts. It is impossible to answer those things, you must take the facts as they are there.

25027 Q. Well, I think it is a fair question to ask, and I think it is a very easy one to answer—can you give an idea of the lateral pressure of air with a velocity of 350 miles an hour? A. Yes, something like 27 lbs. or 28 lbs. per square inch.

25028 Q. Well, then, a light prop, or any light material, would not offer very much resistance to that force? A. Probably not.

25029 Q. Well, when the velocity of 700 miles per hour—which gave you the estimated pressure, I think, of 20 or 25 lbs. per square inch—reached the back heading, there would be expansion? A. Undoubtedly there would be expansion.

25030 Q. Well, with expansion there would be reduction of temperature? A. Probably there would.

25031 Q. But would not be so curiously? A. Probably it would.

25032 Q. But, more than probably, you say you have expansion without reduction? A. At that particular point you are on evidence of heat at all. There are absolutely no evidence of heat at all of the back heading.

25033 Q. I am not asking for the evidence of heat—I simply want to know whether it, for the sake of argument, as to the temperature of 261 degrees at the end, would that temperature not be enormously decreased when it reached the back heading? A. Probably it would.

25034 Q. I think you must allow that with expansion you get a decrease in temperature? A. Probably.

25035 Q. Now, the 4th Light being wet, and there being no dust, the question of dust could not take place there? A. No, you are no evidence of heat or flame there at all.

25036 Q. Well, then, if there was an eruption of dust in the 4th Light, and the temperature was reduced—I think, Mr. Roberts, give the temperature, with a half of the velocity, at 35 degrees—if the temperature was reduced after the air left the 4th Light, before it reached any place where dust could be ignited, there could be no question of dust? A. I do not see that there could be any ignition of dust on the main roads, simply because there was no dust on the main road except the dust that might come from among the pillars in the 4th Light.

25037 Q. But then, we have the evidence, you see, that any dust, or any small coal, that may have been in the 4th Light pillars workings, was removed by the first fall? A. Yes—that is, if you can believe that it was entirely removed, which is a thing which I very much doubt. It is not a roof that would fall in that way.

25038 Mr. Dixon? Q. To give some idea of the force of this blast, I might mention that I think it works out, on the Director's estimate, at somewhere about forty times the force of the "Dunkirk" gale as registered by Mr. Dixon? 25039

22033. *Dr. White* [I think it is the latter. In the "Dandenberg" case the instrument broke at 125 miles an hour.

22034. *Mr. Stone* [Of course, the pressure states as the square of the velocity, approximately. The "Dandenberg" was slow rather than fast.

22035. *Mr. Roberts* [You know, I think, that the difficulty is accounting for this disaster in the comparative absence of force? A. Yes.

22036. *Q* But to find that a failure to meet a heavy explosion? A. No, the failure of many military explosions—gas explosions—in the presence of force and the avoidance of them.

22037. *Q* But I think, if you will read accounts of many military explosions, you will find that there are portions of the mine where there are very few indications of flame—explosions? A. Yes, oh, yes, quite right—and explosions especially. But, apparently, not dust. The witnesses, apparently, of the United explosion and the French explosion, in French Columbia, are those that the explosion occurred at one portion of the mine, and that, almost simultaneously, there were other explosions in very distant portions of the mine, without apparent passage of flame.

22038. *Q* But do you know whether, in the United explosion, it is not a fact that there were very few indications of flame beyond that being caused? A. Well, I do not know, further than reading the extracts from the DeLamotte's report. If I had had the whole report to read, I would have been in a better position to answer.

22039. *Q* Well, looking upon that feature of military explosions—viz., the apparently simultaneous explosions in different parts of the mine—there would be conflicting evidence of force? A. Yes, but there has been no conflicting evidence of force here, there has been no branch of the tendency of force here. It occurred in the 4th Right, and went up and out to the 1st Right, and there was no leakage in the vicinity of the failure.

22040. *Q* I did not suggest so, I merely referred to some scattered points on Mr. DeLamotte's report. Have you read Mr. Donald Stone's book on "Military Explosions"? A. Yes, I have.

22041. *Q* Mr. Stone is rather an able man? A. I suppose so, I do not know him.

22042. *Q* We can only judge of men by their books? A. Apparently, he has.

22043. *Q* Do you know how he accounts for the independent explosions, as it were, as a mine after a large explosion? A. No, I do not recollect at the present moment.

22044. *Q* Do not you recollect that he gives as a reason, and advances as a theory, that these local explosions, as it were, were caused by the main explosion having access to fresh oxygen? A. Yes, I recollect that. I remember that, in due failure.

22045. *Q* Would not you consider that Mr. Stone was a careful investigator, and an expert in explaining these occurrences to Mr. DeLamotte? A. He is a careful investigator, but I do not consider Mr. DeLamotte and Mr. Stone to be the same kind of men.

22046. *Q* Did Mr. DeLamotte ever write a paper or write as Mr. Stone's book? A. I do not know whether he has written a paper, but Mr. Stone's account gives me in a very great deal of interesting and valuable description. I am sure he is an able man, but he is rather a prima, and aggressive in his style, and gives rise to a good deal of adverse discussion.

22047. *Q* But are you aware whether Mr. DeLamotte's theory as given rise to any discussion? A. No, Mr. DeLamotte's theories do not seem to have given rise to much discussion, but I am sure that they are being taken upon.

22048. *Q* I recollect that at the time his theory was ridiculed by the profession? A. Yes, the fact theory was ridiculed also.

22049. *Q* Well, there are two side mine also, by different forms of reasoning, give their theories as to the cause of these independent explosions in different parts of the mine—mine, which do you favour? A. Well, the DeLamotte, I take it, more rather I cannot be to the matter in hand. He gives his opinion as to an isolated explosion. Mr. Stone, rather generalized in that particular place, I think. He did really write his book with the Canadian and American explosion in large, but I think Mr. DeLamotte was more on particular cases to explain particular explosions.

22050. *Q* I am under the impression that that is just what Mr. Stone did, in such particular explosions, investigated them, and gave his conclusions as the result of these particular investigations? A. Oh, yes. Of course, a few years before that the brothers Adams wrote a book on military explosions, where they pointed to the fact that not part of the mine seemed to give an extremely rapid, but comparatively slow to have given beyond that now certain explosion as to about that wet portions of the road give an extremely slow to certain cases. I presume that the Adams were referring more to gas explosions.

22051. *Q* Can you state any military where there has been an explosion and simultaneously there have been other explosions in different parts of the mine, which were attributed to occurrence—any military loss from gas or dust? A. Have could there be an explosion or it was then from dust or gas—how could there be.

22052. *Q* I say, "If there have dust or gas?" A. I do not see how it is possible to have an explosion.

22053. *Q* I say, "From being dust or gas?"—you may have one of the two, but not both? A. I am, I think that is obvious now. [Interrupted.]

22054. *Q* They had both? A. I think they had a very slight amount of dust, I am not sure.

22055. *Q* I have signed Shafter's? A. Yes, I have. Well, Shafter was a particularly fiery place. All these explosions were almost simultaneous in the lower mine—the 1st Right mine—from the amount of gas that was given off. I remember the time when they were practically simultaneous.

22056. *Q* It is not a fact that in all these explosions where this theory of recurrence has been advanced either dust or gas has been present? A. There must have been either one or the other or there could not have been an explosion.

22057. *Q* Now, the United mine was a gray mass, was it not? A. I do not think it was particularly gray in the 1st coal.

22058. *Q* That was a typical coal where the explosion occurred? A. Oh, yes, it? It was there my son.

22059. *Q* And dust? A. Oh, yes, it was dusty.

22060. *Q* It was also worked with safety lamp? A. Yes.

22061. *Q* Do you remember the type of safety lamp? A. No, I do not. I never was in United Colliery.

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25074. Q. But do you remember the type of safety lamp that was used twenty odd years ago in Scotland?

Q Did you know that I have had a particular type of car up Southend in those days? A No, I was before that time.

Q Do you know that it was a lamp that was endowed by the Kling Institute of Scotland P

12070 Q As a matter of fact, every man who arrived that day in his hand carried a death-trap with him? A Very likely. I do not know what trap the United Colliery was using. Was it not the

Classy?

20074 Q No, it was what they called the Soviet prison camp.
20075 Q By you know that there was very low discipline in Vietnam? I do not know. I was here
at the time.

10. I have read extracts from it.

Q And you do not know that, on a number of the bedclothes, paper and matches, and upon lighters were found?

Frank: Q Now, I would like to read you a bit of your evidence here, in order that you may understand my remarks better:—

[illegible]

Then, how good! Mr. Henderson's words! A. Not like words of a

THOMAS: Is there any way out of this? *a. No. I have not read his report at all.*

Q. Would you be surprised to find that Mr. Dickenson makes no reference whatever to a fall?
A. I understood that he did.

NOTE • He made absolutely no reference what ever to a fall, and there is nothing in the evidence to show that a fall had occurred. I will read you the Doctor's conclusion --

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(b) That the explosion originated within or on the ship; or in the yard, at Bangor, Maine; or at Eastport and in the said machine; the former above being most likely.

(14) This is *not* necessarily caused by the lightness of the quantity of low-dose (1) as open light, or as a match, or by being down through the game of a Florida male (1).

⁽²⁾ Thus, being that common, it was observed by gas tests that the combustion was incomplete, and by direct inspection with gas drawn into flame the initial oval, and later on that of the droplets, as I described by the test and pointed out by the explosion, and that some of the gases were ignited separately by the pressure, as already the examined flame, in an oval form.

(d) The aims of the course were clearly guided by considerations of the principal Act, in having participants well-informed in their profession, and in opening their hearts.

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4. How does he present them? For it, read the parts in which he accounts for the dramatic changes in the direction of the novel?

And, if I have just read it, he shows that, as your editors' heads can be believed, suggested for a moment that the explosion was caused because the person was on the roof? And I understood so

250P. q. Will I have need of it for you, and as it stands for you to see, how can you give an instance where an opinion is stated to have been raised previously for permission or by a fall? A. It is suggested that the Talk-250-Will explain a must have been raised through that

20044 *P* That is for a correspondence *P* \rightarrow *P* That is for a correspondence

YOUNG Q And that, of course, was contradicted by the Manager, and it is not supported by the report of the Inspector? A Not the Inspector's report as an earlier before the guns had been cleared up, and when there was, according to the Inspector, a reasonable suspicion that it was caused by a job fire. Management says it was caused about that time was on the line.

25000 Q. Thus, the correspondence's letter was written without any knowledge at all of the game? A. I do not know that.

Q. Well, the Manager was in? A. I do not know that. The newspaperist evidently knew what he was talking about; he was a clever man.

14399 Q Do not you recollect it is in the case of an engraving, and a newspaper engraving, if you like, if it could be introduced in a bill, or arrangement, the Manager would be only too glad to take refuge in that suggestion? A He did not know at the time. That was only a thing that could be suggested when it was known that it was not a bill. QI never saw your. Widdowson sent to me an account from some of the members of Mr. Woodhouse's well known affair at H. as of a very serious explosion in South Wales, where there was a gun in the case of all and it was suggested that, in that case, there must have been both gun and accident, and that it was the question raised by the industry and intensity of a full view of the gun, possibly the stored up and used. QI cannot. I do not know the name of the man, and I never visited.

2008 © This was not previously published. ^a They did not support recreational fishing.

20094 Q That was simply something caused by motion brought about by the friction of motion of a rock, but that's a very different thing from this idea of a continuous brought about by a fall. When you were talking to me, didn't you say to the best of your knowledge that it is brought about by the great collapse, did you have in mind the H-bomb, was it not? A Yes, I have in mind the H-bomb, yes, yes, yes.

19899 Q Do you know whether if the ¹ experiments tend to show that, in order to get best, you must have a very high power of the test and, you know, we know that you must have a reasonable measure of the change to make it follow it will quite, and that is one of the features of

- 20490 Q The calculations giving a velocity of 780 miles per hour are based upon the datum of half a second for the width of the piston, is it not? A No, because about three quarters of a second.
- 20491 Q No, half a second? A I did not get into it with that number, but I allowed three quarters of a second.
- 20492 Q But that would not be continuous pressure? A It might be at times, because coal-beds and carbonaceous rocks in different times and dust and fire-damp.
- 20493 Q But that would not meet the conditions of Mr. Hoffman's experiments? A Probably not.
- 20494 Q And, when the Indian was experimenting, he was experimenting with an air compressor, working against a pressure of 10 1/2 per square inch, but in my experiment was not exhausting to the atmosphere? A It was simply pressure. That, I think, was Hoffman's experiment, not the Indian's. The Indian's experiment was conducted so as to explain what was at first supposed to be an explosion of explosive in air reservoir. Of course, he went to show that the pressure of the air was quite sufficient to give it all the rate that were used in his machine, and also the real dust.
- 20495 Q Yes, but that is by continuous pressure? A Whether it was continuous he does not say.
- 20496 Q You mention there a parallel between an explosion started in an air compressor under continuous pressure with that in the mine? A They would be analogous, quite analogous.
- 20497 Q You knew Mr. Ralph Moore? A I did.
- 20498 Q He was a long time on the report? A He was an old Inspector. Well, of course, the man is dead, and I am very sorry to see a simple word against a man who is not here; but I do not consider he had anything like the capacity of some of the other inspectors.
- 20499 Q As all events, he was a shrewd man? A Oh, yes, he was a very honest man.
- 20500 Q And, in investigating the cause of an explosion, I suppose his evidence should be given weight to? A Yes.
- 20501 Q Well, Mr. Ralph Moore reported upon the Indian explosion; and I will read you what he says—

Upon full consideration of the whole matter, I am of opinion that this was a dust explosion; and that it originated in some place in the section where some gas was present. That it did result in the present circumstances, and without an accumulation of gas, that, when the shot was fired, it ignited the gas which was in the place, and a cloud of coal-dust was raised.

and in fact. Now, that is Mr. Ralph Moore's opinion as to the cause of the disaster at Union?

A Yes, and the force of Union was from the first towards the shaft in all the mine, not in the face.

20502 Q There was conflicting force—I do not know whether you have seen the diagram? A No, I have not seen the report at all. It is not given in the study here.

20503 Q Well you do not think there is no doubt as to show that the explosion was caused primarily by a dust, and that, consequently, if it was a factor in any explosion, was a secondary effect? A I do not know at all. You are here we have got all these people so consistently to hand. There is less interest in sending an explosion a year or eighteen months after than ever.

20504 Q But I take it you yourself attach considerable importance to the report by Mr. Dechenance, on the Indian explosion, in having said your own thing? A No, I make a suggestion that it was the only one feasible that I could see under the circumstances. A great many of the Indians you will never know, and, therefore, it will be impossible to that you at.

20505 Q And then you mentioned the Indian report as supporting your theory or your suggestion that a fall— (Interposed)? A My principal information regarding Union was from the Colliery Division records.

20506 Q There has been a suggestion made by I think the members, namely that only evidence of contemporary character on the Colony should be regarded, and you consider that the men colliding mineral constituents should be considered as untenable persons in some way? A No, I do not think they should be considered as untenable.

20507 Q Collapsible materials? A No, I would understand myself. I hold no Imperial certificate; I could hardly be expected to examine myself.

20508 Q But do you think it is in the interest of the industry and of the miners themselves that miners should be prevented from making the services of the men, and even that the British coal-field problem? A I think it is distinctly in the interests of the miners, and of the miners, and of the trade, that the very best method and experience that can be obtained should be obtained.

20509 Q Well, I presume you recognize that the conditions of mining in the Colony are not sufficiently varied for a man to obtain the same experience here as in British coal fields? A I have already said so. We have not the varied conditions here that they have at home. You cannot put an ordinary miner here to do the same work as the ordinary miner at home would be put to do, because the miner here is quite inexperienced.

20510 Q Have you paid attention to the new Rule 17 as to rock-drag—is not the structure completed?

A Yes, I think it is a little. I think it should be altered.

20511 Q Simplified? A Yes, simplified.

20512 Q In your experience in the Colonies, have you found the strain rather treacherous? A Yes, it is rather treacherous from three interesting changes.

20513 Q And affected by atmospheric conditions? A Yes.

20514 Q That being so, in your opinion that all shafts made in future should be lined? A Yes, I am decidedly in favour of shafts being lined, even when there is no danger, because very often, when we are subjected to that danger, it is very easily. Pure conditions is not as likely to be, but complement is in my experience, and I would say that not only limestone shafts, but also conglomerate, should be lined.

20515 Q There was another suggestion made, that miners should have power to appoint mining engineers to make their checks competent; what is your opinion about that? A I think you would not expect miners to agree in that; you could not expect miners to agree to any such suggestion. I think it would be highly reprehensible. First of all, you appoint Managers by an examination, they are appointed because of their ability. The miners are allowed to inspect, what more do they want? I do not think it would be right to put in any stronger or any mining engineer. It would be quite wrong. Personally, I would prefer to go out of the trade altogether than to be charged to do such a thing. I would prefer to get out of the trade entirely than to develop my words to my miners explain that I did not choose myself.

25112. Q The evidence of the men who have come before the Commission is to the effect that they have a difficulty in securing the services of competent men? A I do not think there can be any truth in that, but my competent men are not used and assigned wherever they go. They are becoming such a rare commodity, that they would be paid a high satisfaction; any recommendations made by competent men would receive interest and careful attention.

25113. A. Roberts? Q Do I understand you to say that competent men are becoming a rarity? A Yes, a rare commodity.

25114. Q Amongst the men you speak of? A Amongst the average class of men.

25115. A. Roberts? Q You mean most of experience? A Yes.

25116. Q That is partly due to the very conditions of mining in New South Wales? A Yes. It is holidays, play, football, horse-racing, and such like. The young generation seems to be much more taken up with these than with serious work.

25117. Q I take it, from what you say, that you have no objection at all to competent men accepting on behalf of the miners? A No, on the contrary, I would encourage it by every means. The opinion of a competent man, in my opinion, is a very valuable thing asked to the Manager, and, generally, I would lend it with satisfaction. I would give competent men every possible encouragement, and pay great deference to their opinions.

25118. Q There is an objection to the present form of Rule 85. The miners take the objection that, according to the wording of the rule, they are forced to appoint men who are actually working, although they may have completed work and retiring? A Yes. Of course, I am rather out of date now, but I do not think there would be any objection asked to men who are not actually working, but who had been practical men. I may be quite wrong, because, as I say, it is hardly my way, but I think I have heard of men who were practical men, and who had ceased working in a mine, and had been appointed.

25119. Q But you are given in evidence here that a man who was not an actual working man had been appointed a check inspector, and there was some danger to his making his inspection at Keweenaw Colliery—that is the Wynn—but ultimately he was allowed to go on? A I do not know about it; it did not come before me. I would have made no objection, I am sure.

25120. Q You do not see any objection to the rule having altered so that any competent man, although not actually working, could be appointed check-inspector? A I would have no objection, I would not make an objection. I have never heard of any objection being taken to men like Mr. Wynn. As a matter of fact, I never heard his name before, but I am sure the objection would never have come from me.

25121. Q Very large, in your evidence, and that you think these roads should be watered. Now, I would like to know to what extent you would carry this out? A That requires a good deal of consideration. I think there can be no objection to describing the rules of the roads against the coal, and making the dust off, and, in the majority of cases in the Colliery, the floor also, but there is no doubt in the world, with regard to the road of some of the mines, you must proceed with very great caution, they first of all, there is so much dangerous matter in the roads immediately above the road that it begins to swell and fall, and cause a good deal of trouble. The road is the danger.

25122. Q My question has more bearing on the height of road you would water? A I think I would be inclined to water certainly all main roads, and where the horses travel, and, as far as possible, where the roads enter the face.

25123. Q But supposing you have a mine with, say, one main haulage road, and two or three travelling roads in a particular district, and, in addition, half a dozen or more roadways, equally, if not more, dusty, and travelling ways, and not haulage ways, would you insist on the haulage and travelling roads being watered? A No, as far as possible, and as far as it is practicable and possible, I think that the roads into the face—that is that you mean, the haul roads?

25124. Q No, I am taking the case of a colliery which may have 10 miles of dusty roadway? It is a very serious question. I think it would be better that the particular case should be dealt with separately. It is a very serious question in this country, unless you have plenty of water; and a large number of collieries have no water.

25125. But, assuming you have plenty of water, would not the first cost of appliances for watering an extensive mine, and the upkeep afterwards, be practically, comparatively speaking, at all events, impracticable? A Oh, yes, in the case you give. In the exceptional case that you mention I think that it would be a question with the owners whether they would continue the mine. You cannot separate the cost of production from such questions, because, over many years, the collieries in New South Wales have been conducted, in the spirit of enterprise, with no profit at all—absolutely no loss. I know that, with every increase of the business, and giving it every assistance and every development, the loss runs on and I have worked numerous collieries in it and could not make the run quite even, and I do not think there is anybody who would find fault with the expenditure, I wasted nothing, and everything that was necessary was provided.

25126. Q Now, what is your object in watering roadways at all? A To damp the dust, and to prevent it from mixing with the air in the case of a sudden combustion, such as, for instance, gun's haulage, or anything in the main road, or any sudden combustion that would disturb the dust if it were dry.

25127. Q But you know that, in the case of what being on a main road, the place has to be watered? A Yes, that is true, but on many roads—I do not say that they must have on many roads at home it would be almost impossible to perfectly and sufficiently water the main roads. You are what a tremendous explosion happened, I understood, from a shot on the main road, in the Illinois, one of the greatest and best collieries that exist in America. Of course, here, where there are tight stops and careful regulations, there is very little dust hanging on the face of it all.

25128. Q But at the Illinois Colliery in your case at all was made for watering and dynamite was used for blowing out the pillars while the shot or the mine was shattering the shot up? A That was very bad.

25129. Q But, supposing that you do water the roadway, it is not conceivable that, in a dusty mine, there may be sufficient dust in suspension in the air to carry on an explosion? A I think, if it is effectively damped, in the majority of cases in New South Wales, in all cases, if it is damped and continuously kept to a damp state for some time, it arrests the reaction, so that after a time you may dampen the watering.

25130. Q But you are thinking, probably, of mines with a temperature of 60 or 70 degrees? A Yes.

25131. Q As the temperature increases—(interrupted)? A It would be a very difficult thing.

25142 Q But, even if you do not see the raindrops, is it not possible that, on a rainy night, there is so much dust produced by the use of the car, and so much along with the air, to carry on the surface of it, a quantity of a mist which would make questions of raindrops that were settled on the road, and on the road, and so on, and we could not see any reason for it, but because we discovered that it was being swept down from the heavens above, and carried down with the air in the air. It would be a very difficult and serious problem indeed with the best deep mines, and with a high temperature, and long lengths of road, and dry coal, and probably fresh coal, to water it. It would be a very serious question indeed. The question of the supply of water is probably a very serious one still. Of course, it is suggested that we should not mix with the water, in the hope that it would keep damp longer, but even that is not all plain sailing. As I say, the very cost of it must be considered.

25143 Q But, if this suggestion of continuous holes good, thereby the watering of the road were would be so vast? A. Well, I see some writers in the magazines about the efficacy of watering of roads. They doubt if more than 6 or 8 per cent. is of any value.

25144 Q Are you aware that Mr. Hall, the mineral Inspector at Elmore, has reported that the attempt to continuously water in his district has failed? A. Yes, I read that some time ago. It would be a difficult thing to continuously water would certainly interfere.

25145 Q I suppose there has hitherto been no definition—a standard definition—of a gassy mine?

25146 Q No, and so far as I am aware.

25147 Q Do you think it is desirable that there should be? A. It is desirable that some definition, within reasonable limits, should be made.

25148 Q If you give your name on what you consider should be the definition? A. I really have not considered the point sufficiently to do so.

25149 Q But this is rather important? A. Yes, I know it is. But I really have not had time to consider it.

25150 Q Would you remember that any mine giving off gas should be designated a gassy mine? A. Construing a precise percentage in this respect, should say that that would be considered a gassy mine, it must be desirable.

25151 Q But, if it is desirable, would not you show the mine in the category of gassy mine? A. If it is always, if it continues to be, desirable, I think it would be reasonable to classify it in that way.

25152 Q But we have had extreme divisions in mines in this State where the regulations in regard to gas was good? A. I do not know about that. But, of course, was giving off gas.

25153 Q But, at that time, would it not have been considered only a slightly gassy mine? A. No, they were much safer, longer in the State, it was considered a gassy mine.

25154 Q Was Dudley considered a gassy mine? A. No. Of course, I have not been down Dudley since they were breaking off the bottom pillar.

25155 Q Was Burwood considered a gassy mine? A. A portion of Burwood, I believe, did give off gas.

25156 Q Was Bessie considered a gassy mine? A. Well I do not know, of course, what division has been lately. I do not know whether all parts of Bessie gave off gas or not, or whether it could be detected in the air.

25157 Q I think you said you had no knowledge of the presence of gas in Kramble? A. Yes, I said that.

25158 Q And your officials had reported that no gas could be found? A. That was.

25159 Q But it is not possible that, although your officials reported, as all good facts, that no gas could be found the coal may still have been giving off a slight percentage of gas, not detectable with the ordinary lamp? A. Well, since the introduction of the hydrogen lamp, we have failed to detect it with the hydrogen lamp.

25160 Q Where when is that? A. I suppose about two years ago or so.

25161 Q When was it reported? A. I do not know, I am sure. Of course, Hunkins has been there only once the accident. But he has failed to detect any gas.

25162 Q Was he told the advantage of the use of the hydrogen lamp? Oh yes.

25163 Q And you still think that the coal gives off no gas? A. I do.

25164 Q Well, that being so, it would be of very great importance to the company if that could be demonstrated beyond all doubt? A. Yes.

25165 Q Would you be willing to have a heading broken off without access to the air for a week or so, and a test made? A. I do not suppose there would be any great objection to it, application could be made to the company, but they have been delayed a very great deal already, as far as I am now, to no purpose, and have suffered increasing loss, and, I think, unsatisfactorily.

25166 Q Do not you see that it would be of great importance to the company? A. Of course, we are working Kramble with safety lamps, and we have no occasion of withdrawing them.

25167 Q Well, then, what was your reason for putting safety-lamps in Kramble, or using safety-lamp? A. Oh, well, I do not know that there was any reason, except the state of the public mind, and the extent of the calamity. If you cross-question me upon the point I do not know that I can give any proper reason at all for it. I have always looked upon it that we have done it of our own free will, but I have always to be told upon Kramble as a mine where safety lamps were long used without any evidence of gas.

25168 Q So it would be of great value to the company if this doubt were settled? A. I do not think it would be of any value to the company at all now, because the company, as far as I know, have no intention of withdrawing the safety lamps. They think they get just about as good a light with the safety-lamp as with the ordinary lamp. It is a little more expensive, but it keeps things in a very much better state, and you see positive better, I am glad.

25169 Q I think of this, but still safety-lamps do not absolutely insure absolute safety, though they give a great degree of safety, do they? A. Yes.

25170 Q But, apart from that, would it not be of importance to you to have it demonstrated beyond all doubt that the coal did not give off gas? A. I do not know that I would suggest any such thing; the company have put down about as much as it is possible for them to do. If there are any of these expert men, they must be made with accuracy rather than the company's money, because the company have no funds at their disposal to do any such thing.

25171 Q But I am not making a suggestion that would be so serious a large expenditure by and a break with and I am certainly not making the suggestion in any other way than in the interests of the company? A. I do not see that it would alter their opinion in the slightest if they have either that there was gas or no gas. They believe that there was no gas just now, and they are going to continue the use of safety lamps.

GRANES—By J. B. Mc Fadden, 10 March, 1905.

25171. Q But if it could be demonstrated that there was no gas, there would clearly be no necessity for the safety lamp? A It would never be desired at all.

25172. Q Then you have no objection to the suggestion being given effect to? A It would never come from me.

25173. Q But, if it were made to the company, do you think they would object? A I do not think they would meet the expense. I do not think they can liberally meet any more expense.

25174. Q This is not a question of expense, is it? The only cost would be that of a few lamps, which could be paid over again? A Possibly.

25175. Q A recommendation has been made by the miners that foremen should be abolished and men substituted,—have you any objection to that? A Unless they can address very good reasons for it, it would be hard for me to supply the miners with reasons for some of their own suggestions. They must state the reasons why they make the suggestions. In that case some of the largest collieries in Great Britain would be required to stop. I see that some of the largest quantities of air are supplied by foremen. I do not see why foremen should be abolished. In many respects there is very much less damage done by a foreman, in case of an unforeseen accident, than by a fan. When fans are damaged in sudden disasters, it is much more expensive to get them repaired than foremen, and the damage is much more extensive.

25176. Q But there cannot be any question that fans are approved —[*Interposed*] P A Oh, yes, sometimes, when they can be afforded. Personally, I approve of them.

25177. Q As a means of that of all the rollers with which you are connected, except Mount Kemble, I think, has not used? A They have all fans, but I do not see that they would make any.

25178. Q It is all a question of power? A Of course, it is all a question of power in both cases.

25179. Q And that is a matter of degree, at the discretion of the owners? A Yes.

25180. Q If there was a permanent making fans compulsory for the future —[*Interposed*] P A No, there is no reason whatever.

25181. Q Forgive me, I had just finished,—if it were compulsory, with a general exemption, say, in cases where employing under thirty men, and special exemption where there might be some difficulties in the way through insufficient capital or the configuration of the ground rendering it unsuitable for the motion of fans? A I do not think it should be made compulsory at all. I do not think it is one of those things that should be made compulsory.

25182. Q But there have been more fires caused by foremen, have there not? A Yes, and there have been a great many head-downs of fans. There will be accidents wherever you have machinery. I do not see how much through men's fault, you cannot get out of accidents where there are men and machinery employed, nor will you have great danger and you cannot get out of it. You may do a great deal to prevent the accidents, but you cannot altogether prevent them.

25183. Q Do you think that gaspans are also liable to be prohibited for use in gassy mines? A I think it would be wise to discourage the use of ordinary gaspans, on account of some of the gases improved high explosives, but we are under a great difficulty in that way, we cannot get a proper supply of high explosives, and those that have been introduced here have not given great satisfaction. The last explosive that was brought before our notice was this that day, actually it was a peroxide explosive, but, on the experiments that we made, it certainly gave a bad name. I suppose all of them do, more or less, for none of them is perfect security of mind. But they certainly give off flame, and I am, from a recent communication from Hume, that that has been received from the list of peroxide explosives. Well, of course, at Hume, they could give effect to that in case, but here there would be very likely an accident apply to the Colliery, and we cannot supply on the spot, so that we would probably be using a dangerous explosive that twelve months after it had reached to be permitted at Hume. There is a great deal of difficulty connected with the use of high explosives here. The men have an objection to pay the higher prices? Roberts was tried for a considerable time, and that was certainly not a satisfactory explosive.

25184. Q You mean to improve the efficiency? A Yes, the efficiency, and it was longer in its action. We are too far away, moreover, from the nature of these experiments. We do not know sufficient about them.

25185. Q That is surely a sufficient reason for continuing to use a dangerous explosive? A I think that, if we could get one of the peroxide explosives first, we, without any doubt or question, as safe as any of the peroxide explosives possibly can be made safe, there is would be a benefit in all that they should be used, because there is no doubt that they reduce the liability to accidents if they are not absolutely safe at all events they reduce the liability in replacement.

25186. Q And the thing of course, do you think that should be entirely on the basis of effects? A Yes, not only in the basis of effects expected for the present.

25187. Q The miners of Somersetshire have asked to have the power to nominate inspectors of mines,—have you anything to say about that? A I have no sympathy with any such suggestion. I do not want to have anything to say myself as the appointment of inspectors, and I do not see that the miners have any reason to put forward for any such suggestion. I think it would be highly improper and wrong for either the miners or the owners to have anything to do with the appointment of inspectors.

25188. Q They are both interested parties? A Yes, I think it highly wrong that either one or the other should have anything to do with it.

25189. Q Hume has been taken to the present method of appointing them,—that is to say, in the appointments being made by the Minister? A I think it would probably be more satisfactory if the appointments were subject to a standard examination.

25190. Q You know that has been tried in Great Britain? A Not indeed.

25191. Q And they have reverted to the old system? A Yes, I believe that is so.

25192. Q Would you consider that there was any difference in appointments being made by the Home Secretary in Great Britain and by the Minister here? A At all events, for whatever reason, it has been introduced at Hume, I believe.

25193. Q Would it be an improvement to have appointments made by the Public Service Board, as being less openable to political influence? A Well, probably I do not know that I have given it any consideration at all. Further than that the very best men should be appointed, and of the highest standard, that.

that is all I desire. I have five suggestions to make as to how they are appreciated, provided that the hotel men are appreciated. The Public Service Board possibly should be considered; probably they would be as good a body to make the appointments as any.

Examination by Mr. Hans:—

21184. Q I think you said that, since the hydrogen lamp was brought into existence, you have not been able to discover any gas in Mount Kanabla? A I think so.

21185. Q And you mentioned two years ago? A Yes, it was two years ago when we had it at Mount Kanabla.

21186. Q Did you really have it there as long as two years ago? A Not so long, I think it was years ago.

21187. Q Did you have it a year ago? A Yes.

21188. Q Have you now three new lamps belonging to the company? A Yes.

21189. Q Had you then three a year ago? A Yes, I think it is fully a year ago when we had it.

21190. Q Have you had any real trouble with it? A Yes, I think so. I think Mr. McGlashan might have taken about a year ago.

21191. Q You only think so? A I am almost certain that he went down and tested about a year ago with a hydrogen lamp.

21192. Q Is there any record of that? A I do not know; sometimes the accident there have been very frequent tests.

21193. Q But, as far as you know, you are not certain that any tests were made with the hydrogen lamp before the disaster? A No, I could not prove it.

21194. Q Did the company have any hydrogen lamp there before the disaster? A Oh, yes, along time before that.

21195. Q You have said that, in your opinion, you could not advance except to prove why the safety lamp should be used in Mount Kanabla at the present time,—can you give us a rapid reason why you have had to increase the number of depots? A Because the use of safety lamps necessitates the use of more depots.

21196. Q In what way? A The shot firing requires men to attend to the drills.

21197. Q But apart from the shot firing? A I have nothing to do with the appointment of deputies, Mr. Rogers appoints the number of deputies that he considers right, and so long as he considers right, I take no exception.

21198. Q But you have gone here to give an opinion as to the safety or otherwise of that mine, and you have done that,—you have already given expressions of your opinion here as to whether that mine was a safe one or not? A Yes.

21199. Q If it is a safe one in the way you have described it here, what need was there to increase the number of examining depots since the disaster? A Mr. Rogers, I believe, would tell you, I do not know.

21200. Q But have you not knowledge of those facts now if I ask? A No. There has been a good deal of work to do in connection with putting things up and getting things straight, in which our depots have very likely been employed; but beyond that, I do not know of any reason why they should be increased beyond the usual thing, and the rules were ordered by safety lamps—everything is new to them.

21201. Q Do you know whether it took more or more depots constantly employed to examine the waste workings before the disaster? A No, I do not think that any of the depots were employed doing that before the disaster occurred.

21202. Q Do you know that there is any constantly employed now? A Yes, but probably not constantly. The men who work, let me off the men looking into the gold. There are two of them (shewers).

21203. Q He said it would take five days of his time each week to examine the waste workings? A Yes, but he is doing other work as well. I have explained into that.

21204. Q He agreed the opinion to the Commission that it would take five days of his working time to examine the waste workings? A It may be so.

21205. Q Do you have any reason why the waste workings should be so minute now? A No. We have been very anxious to discover anything that we could discover, and I have put as much time as whatever on the management, either on the under manager or the Manager, as to what they should do so when they should employ in order to discover any due to the accident and, of course, the introduction of safety lamps has introduced a new and extensive element quite strange to them.

21206. Q That does not affect the question I put to you? A It does.

21207. Q What would be the nature of the nature of the depots who would be examining waste workings, would be looking for gas? A Yes.

21208. Q Would he be looking for large falls that would be likely to take place? A Very likely, and, you see, the whole of the mine has not been in operation since the explosion. There was a large section of the mine that was not working at all, and he had to go through that.

21209. Q He would have much more to do than he has now? A Much more to do than when the mine was in working order.

21210. Q So that, instead of taking five days, it would probably take more days, then? A I do not say that at all. The necessity for keeping men looking at the waste workings would be very much more since the accident than before, because formerly there were sections of the mine in which men would constantly travel which have not worked at all since the explosion.

21211. Q Sections of the mine which were formerly worked are not working now? A Yes.

21212. Q Would they require to be examined every day? A There would be travelling every day.

21213. Q When are you referring to now? A The roads among the pillars.

21214. Q You do not mean to say they should be examined every day? A Of course they were, the shewers would be going in to see them.

21215. Q The shewers would only go on the hanging roads? A Yes, but all the traffic was going through the pillars at the same.

21216. Q You do not mean to give the Commission to understand that the shewers were making an examination? A No, they were simply going along them.

21217. Q You do not expect that on an examination, they were simply travelling these roads before the disaster? A Yes.

Trans.-Dr. J. H. M. Slaten, St. Louis, 1913.

22322 Q How does that affect the examination of the workings? A Well, that was practically made useless, when the trouble was going through.

22323 Q But, if the examination of the main workings was effectively done in a few hours on one day each fortnight before the disaster, why should it take a man five days of his time each week now? A I presume Mr. Rogers will very likely be able to answer the question, but I suppose that those men who have been appointed and practically failed numerous of months have been employed sending up the mines and so on. [Laughter]

22324 Q One of them has been here and has told us that because a wholly untrue statement? A Probably; but you are asking me a question which does not come under my notice at all. I could not tell you what anybody is now doing in Kentucky.

22325 Q I want to know if you yourself, who know about this mine, know of any person who is worth time should now be devoted to the examination of the mines? A I give no orders whatever. Mr. Rogers will, no doubt, be able to explain everything to you. I give no orders about the examination of main workings, or the employment of deputies, or anything of that nature.

22326 Q Do you know any reason why the examination should be made now often than monthly any more than before the disaster? A No, except that we expressed a wish to Mr. Rogers that he should examine everything possible about it, and spare no expense in doing so.

22327 Q About what? A Anything that would lead us to an opinion as to the cause of the disaster.

22328 Q You do not expect that this would necessitate the employment of a man going round every day? A Yes, Mr. Rogers might put his own interpretation on that.

22329 Q Do you think it is more going round every day would be able to find any new clue by going round every day? A I think they would be doing other work too.

22330 Q So you think an examination every going round day after day would prevent any new clue? A There is no saying what is might do.

22331 Q Then you think it is possible he might? A He might do so. You cannot tell what he might do.

22332 Q The only thing he might discover besides what we have seen in the existence of gas? A I could not suggest what he might discover. I cannot answer.

22333 Q Is there any other considerable thing that he would be likely to discover? A I do not know; I presume most probably upon whatever is thus sufficiently important to report he would report.

22334 Q So you think there would be anything else he would be likely to find except gas? A Probably not.

22335 Q So that the examination that was made as monthly is for the examination of gas, to discover whether the mine gives off gas or not? A Yes, possibly.

22336 Q Do you regard the fact as a more dangerous element than gas in a mine? A No.

22337 Q Do you think that you are dealing with the gas question with safety-lamps? A In a mine?

22338 Q In a mine? A Oh, I think so.

22339 Q You think you could meet the gas difficulty by the introduction of safety-lamps? A Oh, yes.

22340 Q Now, you have already told me that, if safety-lamps had been at Mount Kenilworth, it would have made no difference as far as the disaster is concerned? A So far as my opinion is concerned.

22341 Q How do you personally draw the inference now that you can meet the gas conditions with safety-lamps?—[Laughter] A Because I do not think there was any gas.

22342 Q You have already told me—[Laughter]—A I distinctly asked "Is a mine?" and you said "Yes," and I said "Yes, I thought the safety lamps would deal with the gas question in a mine."

22343 Q Is it one mine? A In any mine.

22344 Q Well, Mount Kenilworth would come within that heading of any mine? A Of course it would.

22345 Q You have a suspicion of telling me in answer to a question, I feel remember, I think, that if safety-lamps had been in use in Mount Kenilworth, in your opinion, it would have made no difference as far as the disaster is concerned? A Yes.

22346 Q How do you remember these two things that this mine did not gas to be a more dangerous element in a mine than that, and that you remember that safety-lamps would deal with the gas question? A Because I do not think gas was present.

22347 Q But you have told me here that you regard gas as more dangerous than dust? A I think it is.

22348 Q You have told us further, that, in your opinion, the loss of life at Mount Kenilworth was caused through mining carbonaceous material from heated dust? A I suggested that carbonaceous material was produced only by the complete combustion of coal, or dust, or carbonaceous matter.

22349 Q And that distribution from dust may take place in a mine where safety-lamps are used? A Incomplete combustion?

22350 Q Yes, where safety lamps are used? A Not necessarily if you hit a fire anywhere it would produce carbonaceous material.

22351 Q But I understood you to say, in answer to that question, that this distribution of carbonaceous material takes place in a mine where no safety-lamps were used? A I said so each thing.

22352 Q You think your head is answer to that. And I think it is worth that? A So with that.

22353 Q Would you say that you could get the distribution of coal dust in a mine worked with safety-lamps? A Yes, you could get distribution of coal dust, producing carbonaceous material, wherever incomplete combustion of carbonaceous matter took place, but there would be no difference whether the mine was worked with safety-lamps or open lights—light that gas and you will get carbonaceous material.

22354 Q What I want to get at is how you make gas to be a more dangerous element than dust, in view of the fact that you think that the gas danger can be met by the introduction of safety-lamps, and you now tell us that it would be possible—and possibly even easier to prove, if it is worth anything at all, that as a matter of fact it has occurred in this mine—no gas distribution of coal dust, and no gas if these safety-lamps were used? I want to know how you really describe the gas element of danger as greater than that of coal-dust? A I do not think anybody could answer you—I do not think anybody else could answer you.

22355 Q But you gave an opinion, and I thought probably you could answer? A I do not see how anybody could really answer your question.

22356 Q I will try and simplify it for you, in order to get an answer if I can. You have a clear recollection, I presume, of telling me that, in your opinion, the gas element was a greater danger than the dust element? A Yes.

19293 Q How do you make that out? A Possibly it is a greater danger than the dust, but, of course, both combined enhance the danger.

19294 Q That is not an answer to my question. You gave me a most decided answer to the question, saying that gas is a greater element of danger than dust. Then I asked, and I want to know, how you arrived at that conclusion? A. Do you apply it to Mount Kemble?

19295 Q I do not apply it to Mount Kemble; I apply it generally? A. I do not know that you can apply it generally.

19296 Q Do you want to withdraw your previous answer? A. Yes.

19297 Q Then how do you want to qualify it? A. I leave that to you.

19298 Q But I am not giving the evidence? A. I am merely put a question and answer it. Of course, there are some mines with coal-dust, and there you have a certain danger, and there are other mines giving off gas, and probably no coal-dust, and the danger is such a mine would come from the gas, and it is where the two are combined that the greatest danger would be found.

19299 Q Supposing you had a colliery which was entirely damp, and therefore had no dust, but was known to be giving off great quantities of gas? A. Yes.

19300 Q And supposing you had a mine which was very dusty, but known to be giving off no gas, which would be the greater element of danger in your opinion? A. I should think the gas more.

19301 Q How do you regard that as the most dangerous? A. Well, of course, to explode the coal dust would require a combination of circumstances that might very rarely happen, and, even in those circumstances that have been considered at Home, they were conducted under conditions that would hardly arise in a colliery, that is, with dust alone.

19302 Q But that you do know that, that it is possible to get as large a fall in a mine which is naturally damp as in a mine which is known to be very dusty? A. Oh, yes; but to explode the pure coal dust at Home it was necessary that there should be great concussion. It was not sufficient to simply introduce flame, but I think, if I am not wrong, they had to introduce the element of force, violent, concussion.

19303 Q I want to bring this matter round to Mount Kemble Colliery before I finish with you, and I would like you to give us a pointed statement of opinion in every answer, instead of answering the same ground every time? A. I do not think you are quite justified in saying so.

19304 Q I think I am? A. I have an opinion also.

19305 Q Very well, do you now say that gas would be, even a greater element of danger to mention a coal-gas than coal-dust? A. It would depend on circumstances. If it were pure dust in the one, and pure gas in the other, then I should say my own opinion would be that there would be more danger from the gas.

19306 Q And what facts have you got to lead you to that conclusion? A. I am just giving you my opinion in answer to your question. I think there would be more likelihood of damage to life—that is, if the gas was in an explosive state, in an explosive quantity—than there would be of the combination of circumstances that would explode the coal dust. I think you have more chance of accidents occurring in a purely gassy mine, where the atmosphere is explosive, than in a mine with pure dust.

19307 Q Now, we will take Mount Kemble in connection with the mine, supposing that you had known, which, of course, you say you did not know—that Mount Kemble was giving off gas—pure steam having a knowledge of the state of the mine as far as dust is concerned—which would be more regarded as the greater danger of Mount Kemble, if it had been known to be giving off quantities of gas which may have been, possibly, explosive? A. I would have taken precautions at once.

19308 Q If Mount Kemble had, to your knowledge, been giving off gas to sufficient quantities to make it dangerous and explosive, which would you have regarded as the greater element of danger—that known quantity of gas, or the dust which you have said is the more? A. Oh, I should think the gas, because I have practically seen no dust in Kemble, there is no dust practically in Mount Kemble, and of course I know that there was no such quantity of gas.

19309 Q Then you are to believe that those men were killed by the dust alone, of dust which was not in the mine? A. Oh, no, we cannot ask you to believe that, but I think that it got sufficient dust out of the stoppings, and out of the captured shape, and, possibly, out of a portion of the crushed coal and pillars in the 4th Right—possibly that. That is the suggestion that I make. I do not know where the dust came from, I only make the suggestion.

19310 Q As a matter of fact, if the volume of air which you have already spoken of, having a velocity of 700 miles per hour, had come out of the 4th Right, would you have expected it, if it brought dust with it, to have left any deposit of dust on the left hand side going, where on the mine heading? A. Oh, yes, we know that all the dust that was in the main heading—you were Mr. B?

19311 Q Yes? A. Has been deposited where the air had subsided, after the pulsation of the velocity of the air had subsided.

19312 Q As a matter of fact, was there any deposit of dust which had been apparently carried there, opposite the 4th Right? A. I cannot hear you, you speak so quickly.

19313 Q As a matter of fact, was there any deposit of dust opposite the 4th Right in the main heading? A. There was a little, I think, in the ledge of the road. There was more inside where it there, the road was good, and there was very little trouble. I think we got samples of the coal dust from that neighborhood, but there was very little there. Of course, that was after the event.

19314 Q Of course I am speaking now of after the event, was there anything on the way of dust to lead you to believe that any quantity of dust had been brought out of the 4th Right by the wind blast? A. Oh, yes, there were accumulations of small coal, and waste, and crushed coal, and that came out. It appeared to me that a portion came from the 4th Right, but I was quite certain that a large portion of the dust would come from the tops of the stoppings and from the captured shape. Of course there would be a little small coal lying on the road, although there was very little. It was continuously stirred, it was necessarily a very clean road.

19315 Q I suppose the greatest velocity would be about the velocity from the roof into the 4th Right? A. I repeat no.

19316 Q The group which has been spoken on very much of or, perhaps, as they have been described by some, you say were surrounded by a quantity of dust? A. Well, not dust; small debris.

Witness—Dr. E. H. Robertson, 25 March, 1905.

22287. Q. As a matter of fact, if a gust of wind came out of the 4th Right at a velocity of 700 miles per hour, do you actually consider that one dust or prop would be left alone after that blast had travelled over that road? A. Well, it is very difficult to say. It is carrying out an immense quantity of dust and prop, but it is hard to say what would be the after effect. If you collect a railway train, going through a tunnel, you will find that it deposits a dust, a great cloud of dust, comes up after the last car, and is deposited. In the same way that blast would deposit dust and prop.

22288. Q. But it would not deposit that prop there on road? A. I do not say anything about the prop.

22289. Q. But the prop was there on road? A. The prop was there on road and there were other props and materials all in and down road.

22290. Q. Do you actually think that a blast of air would come out of the 4th Right and blow these four cars at great distance, and leave this piece of timber standing up in that way? A. I am so unsure to doubt it; it is so very difficult to say. Sometimes you say things are absolutely impossible, and yet afterwards you find they are quite possible.

22291. Q. Now, do you yourself think that it would do so? A. Yes, I have seen so many evidences of these coming out of that place that really it is one of those little things that are difficult to explain, but I am not inclined to say it is impossible.

22292. Q. You think it is quite possible that a piece of timber, which is not very weighty in itself, a prop, would be found standing after a terrible blast of that description, which you have described, had passed by, with the kind of it less up in towards where the blast came from, and that the three, after passing that, would be sufficiently strong to hold them in any way? A. I think so. You do not know exactly the direction and swirl of the wind at that particular spot. The prop was found sticking into a lot of loose material, probably run that.

22293. Q. But you know very well that, to support your own theory, there could have been so much there, but it was blown out? A. I do not know. I do not attempt to explain any of those little things, they are difficult to explain; there are such a superabundance of other facts that a little one may escape.

[At 12:45 p.m. the Commission adjourned till 1:45 p.m.]

Adjournment

[On resuming at 1:45 p.m., Mr. W. E. Frost attended to take shorthand notes of the evidence and proceedings.]

JAMES ROBERT MELLAN ROBERTSON, previously sworn, was further examined, as under:—

Examined by Mr. Bishop (prosecution):—

22294. Q. Is yore of the disaster which has been the cause of loss of life through the distribution of coal dust, second, as you say, by a wind blast, what proposal do you make with a view of preventing such a disaster in future? A. No proposal, excepting watering the roads whether they come a dust or not.

22295. Q. Do you think that is a provision which should be put in operation elsewhere? A. Wherever there is dust.

22296. Q. Whether there is gas or not? A. Yes, and to regulate the management as to how it should be done.

22297. Q. I am telling it to your opinion that the roads should be watered whether they are dusty or not, and knowing it to be the management to decide via that means? A. No. I would say that water, whether the roads are dusty or not, and it will be left to the management of other colleges to say whether they will do so or not. If they do, it will be left to the Manager to provide the best scheme of distributing the water.

22298. Q. In your opinion, where there is dust, the roads should be watered? A. It is a way provided, at all events.

22299. Mr. Bishop. Q. Not only in the expectation of a big fall, but generally speaking? A. You could never expect another big fall like this to come again. I would like to make an explanation with regard to a statement I made previously with regard to an inspection with the hydrogen lamp. I said I thought that McMichael had been showing a place where to work it; but I find that is not the case. I told McMichael to go, but I do not know whether he went or not.

22300. Mr. Bishop. Q. Then, in the test of your recollection, no test was made with the hydrogen lamp? A. I do not know of any.

22301. Q. Coming again in your theory as to a blast of wind coming out of the 4th Right, which split at the end of the 4th Right in the main heading, can you account for the reason why so much damage was done by the severed part of the conveyor, and as to the damage was done by the other end left? A. I do not think that it was an equal blow. I think probably that more force went up the shaft, but, again, the same part of the road is much better than the portion of the roof collapse. There were an iron props supposed to support the roof edge, and most of the damage was caused by the buckling out of the iron bars and letting the roof down.

22302. Q. It would take tremendous force to knock them bare down? A. Yes, it would take a great force.

22303. Q. Did you have been here outside the tunnel? A. Yes.

22304. Q. Do you think that the force, from what you say, was as great as the tunnel-mouth itself as it appeared at the telephone column, where there was a lot of destruction? A. The telephone cable was a weak part and a wide part of the mine. I cannot see much difference in the force. Timber was knocked out, and the falls of coal were pretty equally distributed.

22305. Q. Can you understand, if that was a wind-blast, how it would be so great at the tunnel-mouth as at the column? A. Even an explosion of gas would diminish it at least so. As to whether this blast was greater at the foot or at the top I cannot say.

22306. Q. Did the evidences of force at the tunnel mouth—would they not have been generated by dust explosion? A. Any such force would have left evidences of dust. There are no evidences even of heat—none whatever.

22307. Q. How do you arrive at the conclusion that there was no heat? A. There were no evidences of heat on the timber.

22308. Q. If we have evidence that people were burned or singed? A. I am not certain. I think you will find that Clark was burned with steam. Has anyone noticed that as a mystery, considering that there were three boilers, working up to 90 lb. pressure, running that mine.

22309.

- 25309 Q Well, when there a man's hair off? A There were not hot ashes and heated portions of steam-pipes lying about. Surely I am no evidence of burning.
- 25310 Q Do you think that there were some papers with steam-pipes or hot ashes? A They were papers with hot dust. Clark's papers would come from nothing.
- 25311 Q You know that Clark had his hair burned? A I did not see his hair singed.
- 25312 Q Did you not see that his hair was short? A Clark always wore his hair short.
- 25313 Q Did you see Freddy Everett? A Not until he was dead and burnt.
- 25314 Q Do you know it is a fact that you could see the ends of his hair were singed? A You could do that with heat.
- 25315 Q Would you not do that? A The truth is that if it was of the character of the world how Freddy ever escaped?
- 25316 Q There would be no mystery of the flames come out of the main heading? A It would leave traces. You can scrape hair with heat. At all events, some of the ladies outside the mine were so much burned that I am at the present moment.
- 25317 Q That is a matter of opinion? A It is a matter of fact.
- 25318 Q Do you know that other people say they were burned? A I have seen them when they recovered.
- 25319 Q Do you know that other persons say so, and that at least four of them are qualified men?
- 25320 Q At the present moment?
- 25321 A Wade? I do not think that is so, Mr. Hester. I think that Dr. Wade said he could not express an opinion about Clark. Dr. Nash spoke of two small boys.
- 25322 Mr. Hester? He spoke of a man being burnt, and of his hair being singed.
- 25323 A Wade? There were two boys who had their clothes burnt off and straps around their waists.
- 25324 A Wade? Their names are not given.
- 25325 A Wade? At the present moment and that long of the boys was named Silcock? but someone else said it could not have been he.
- 25326 A Wade? There was a boy named Nelson.
- 25327 A Wade? The fact is Dr. Robertson will not accept anything which he did not see for himself.
- 25328 Q That is an explanation of the whole of his evidence.
- 25329 A Wade? Your opinion is that there was no burning by the flames there, notwithstanding the medical evidence? A There was no burning by flames.
- 25330 Q How many ladies did you see present? A A large number.
- 25331 Q Did you examine them thoroughly, with a view of giving evidence? A No. I saw probably as many with the water this morning, but the true one notwithstanding. That would be those without flames.
- 25332 Q Did you examine them so that you could say they were not burnt with flames? A I never examined them with a view of giving evidence at all. I took no notes of their appearance.
- 25333 Q Notwithstanding the evidence of other witnesses you say that they were not burnt by flames? A The evidence I saw could have been produced by heat without flames.
- 25334 Q What degree of heat would you require, to give the evidence of burning which you saw? A It would depend on the individual.
- 25335 Q Do you accept the statement that Ashton was burned? A I saw Ashton—at least a person who they said was Ashton. He had a portion of his waistcoat singed, and a portion of the epidermis on his back was raised.
- 25336 Q How was that raised? A I think by heat. It was not much damaged.
- 25337 Q What degree of heat would it take? A I could scarcely tell you—under 350 degrees, I think. If he were severely scalded, it would take more.
- 25338 A Wade? 115 degrees of water would with water, but not without water.
- 25339 Q Do you know what heat they subject you to at a Turkish bath? A I do not know much about Turkish baths.
- 25340 A Wade? 115 or 150 degrees I suppose.
- 25341 Mr. Hester? Q Do you know that miners in the Red Sea work in a heat of from 120 to 150 degrees? A I know that persons working in the open air would have portions of the exposed epidermis removed by the heat and the dust.
- 25342 A Wade? Q Have you made any calculation with regard to the velocity of the air at 700 miles an hour, at the orifice of the 14th Right?—what would it raise the temperature to at that point? A The velocity of the air would raise the temperature to 390 degrees, I should think.
- 25343 A Wade? A Yes.
- 25344 Q You do not get below the Commonwealth the view that that velocity would be maintained at that high rate anywhere besides the 14th Right at the mouth? A I do not get that rate forward.
- 25345 Q Have you made any calculation of the rate at which the heat would decrease? A That would be an involved calculation, and, without data, we can only do it at all. It would be impossible.
- 25346 Q Are you able to account for the fact that, according to your evidence, a current of air passed the back heading without doing any damage? A It is a very remarkable thing.
- 25347 Q Are you aware that evidence has been given showing that some have most hair gone down the back heading? A Wade?
- 25348 Q On the upper side of the 14th Right? A You mean the 14th Right.
- 25349 Q That is on the upper side of the 14th Right? A Of course, I think a little puff of wind went down there.
- 25350 Q What velocity would the little puff of wind have? A No one can say. It slipped over the back heading on each side of a door, but the door was left standing.
- 25351 Q You are unable to explain, taking your theory, why the wind did not show evidence of force in the back heading, you cannot explain it? A I do not see how anyone can explain it. It is certainly a remarkable thing that apparently no force went up the back heading.
- 25352 Q If so much compressed air was given off, would it not naturally go up there? A, It would make no difference whether it was so or no. An explosion of gas would travel at 1,000 miles an hour.
- 25353 Q There is no evidence but before the Commonwealth that an explosion took place in the 14th Right; but, if gas was forced out, not with great velocity, but of the current took it into the front heading and it set a light, it would travel at the rate of 1,000 miles an hour afterwards? A No, it would be the initial point of the explosion.

Witnesses J. E. M. Robertson, 19 March, 1933.

22351 Q Some of the witnesses does not support your theory that an air-current came out of the 4th Right, but that some machine came out. A Then how do you account for the thing having gone both ways, and having never returned to its source.

22352 Q Of course I do not account for it. I want you to give me your views on the matter. Would that be possible, in your opinion—that a machine—my gun—was fired out of the 4th Right and was deposited in the inside airway of the main heading, and that the evidence of fires that we have got would be explained by an explosion of gas afterwards? A The evidence are not in accordance with an explosion of gas at all. That also would not happen. There has been no falling or loosening in the floor.

22353 Q If that blast of air came out, would not the rib sides of the airway have been torn? A I do not think so.

22354 Q Such a great force as that would surely do that. If it had any ribs, it would remove any substance where it got any obstruction? A Your theory would make it clear that there was an explosion at the outlet of the 4th Right? If so, where was the light?

22355 Q It has been put before the Commission that young Morrison was working near the 5th Left with a light? A That if not the 4th Right.

22356 Q Would it not have been possible for the force to have been much less, and to have practically died away, before it reached Morrison's light? A We are evidence of fires.

22357 Q The theory was, in your opinion? A Yes, because there was an evidence of gas.

22358 Q It may be evidence of something else? A If there was a subsequent explosion, it would have obliterated the previous traces, but there are traces of one great prevailing force.

22359 Q You say that a puff of wind came down the back heading? A I have not the stoppings as in your sketch, and that was the only place—the door on the 4th Right—where any such impediment was on the roof. The wind blew out the stoppings on each side of the back heading, and struck against a pillar in the same way that the fan struck the steel pillar in the 4th Right and died.

22360 Q Have you made any calculations as to what force it would require to displace these stoppings? A They are not firm stoppings—very little force would be needed to do that.

22361 Q The temperature of 221 degrees—would that be sufficient to ignite coal dust? A Do you mean to dust it?

22362 Q Would it be high enough to dust it? A I cannot say. Several years that dust will become inflammable when the oxygen is present, but I have not carried out any experiments myself.

22363 Q Is that the lowest temperature that would dust it? A A little lower than that, I think.

22364 Q How much lower? A A few degrees.

22365 Q You would require a current of air of 700 miles an hour to dust the coal dust according to your theory. A Something like that. It is not a theory. A theory is a calculation based on facts, if your theory is wrong, then your facts are wrong.

22366 Q You discuss it. Call it a hypothesis.

22367 A Yes. A Q If the velocity was decreased, you would not get the distribution of the coal dust? A Possibly not. On that matter, of course, accurate experiments would have to be made. It is of little use asking me those questions, because I have not made any experiments, I am only giving you the result of unaided experiments.

22368 Q You have been speaking of what you have been able to find with dealing with mining matters. From your own knowledge you do not know anything about it? A No.

22369 Q Dealing with the dust question, do I understand you to say that you have been in Wales where the dust was so thick, and hanging in clouds, that you could not see far ahead of you? A Yes, on a dull thick day you would have a great thick pall over the surface of the colliery. Of course that is on a still day, like at Mount Lyell, on the same kind of day, the valley will be filled with a sulphurous vapour.

22370 Q The mines in Wales are very dusty? A Yes, they are very dusty mines. The dusts they use have been placed as the sides for the purpose of bracing and simply hanging in the large coal.

22371 Q Do you call that good management? A Some of the Managers would have something to say about the matter if you called it bad management. I should not like to work under those conditions myself. Of course, a change of system is advisable.

22372 Q With all your knowledge of the danger arising from coal dust, do you say that we ought to get a system of management really the same as in the old country? A Of course you would not follow those system of management in all cases—the management of a pit depends on circumstances. I am merely saying that there are two colonies working under the same circumstances. The object is to adapt things to your circumstances.

22373 Q Do you think the British law affects it? A Yes.

22374 Q Do you say that we are able to adapt them here? A Not necessarily. I give an answer to a particular question which I was asked.

22375 Q You admit that there are some matters in which you should not follow it? A It would not suit us, for instance, to have those ships which I have mentioned. In some parts of England they have water buckets which let out the dust in the same way.

22376 Q Should we follow the English law? A Not in those cases.

22377 Q Do you think it would be good management to allow the dust to be distributed along the sides of a colliery? A I presume that the management would take steps to remove the dust. I think watering is pretty generally resorted to now. When you question me as to coal dust you get something which is more than the dust. It is a case of letting sleeping dogs lie.

22378 Q But, if you do not stir up the dust, and leave it in the mine, a wind blast may stir it up in a moment, and it may be distributed and cause great loss of life? A There is no doubt about that.

22379 Q I want to ask you about Rule 75 in the Coal mines Regulation Act. Do you know that, under that rule, the mines must appoint mining engineers, but must appoint, working miners, to make the inspection on behalf of the workmen? A I think the rule concerns mining engineers.

22380 Q The rule provides that the persons employed in a mine may from time to time appoint two of their number, or any two persons not being mining engineers, who are practical working miners, to inspect the mine? A If there was a practical engineer working in the mine, I suppose he could be appointed. I do not see how you could appoint him.

22381

25382 Q You think it would be competent for the miners to employ mining engineers under these circumstances? A That is my idea. That is how it appears to me, having a very legal mind. If two miners were affected, and it turned out that one of them was a mining engineer, I do not see how you could prevent him making use of his competence. I would not be one to prevent him.

25383 Q If you had created a colliery, and two persons were appointed who were granted miners, and one of them was a mining engineer, and the man appointed him as a checkinspector, would you have any objection to that person making the appointment? A No.

25384 Q Against objection from the question of law? A I do not see how I could object.

25385 Q Then why do you object to mining engineers, who are not working as such miners, making an appointment? A They may be in the practice of their profession, and they may be viewers or consulting engineers to other collieries. I do not think it would be wise to have people who are collectors who might act in a satisfactory to the miners of a colliery.

25386 Q Is it because of the ability of mining engineers to take place, showing the miners of the workings of a colliery, that you object to them? A There are a great many objections. Anyone who is working outside in the practice of his profession would be able to obtain information that might be turned to the disadvantage of the miners. No one would be objectionable to the miners should be appointed to make the appointment.

25387 Q That is, apart from their ability to take place? A You cannot help a licensed mining engineer taking notice of what he sees in a mine. If you do not want them to know anything, do not show it to them.

25388 Q What is the difference between the two men so employed. You have a mining engineer working as a miner, and you will allow him to make the appointment, and you may have other men who might be equally competent to make plans. You object to the professional mining engineer, but not to the other? A The professional mining engineer is trained to observe things quickly.

25389 Q Absolutely could observe things quickly in a mine? A Mining engineers are trained to take in the mine points quickly.

25390 Q Do you not see the possibility of the last paid man, who is in the State of payment, as a mining engineer, misconducting himself, and he might possibly be induced in such a strain as to be glad to get a job of coal-digging for a living. Is that not possible? A But surely you would not appoint a drunken?!

25391 Q I did not add that to the question. I said that a man might be brought down to have to work in a mine for his living? A Is my experience of this country, I have only seen one individual of the description you give. Usually, he was a free fellow, but he gave way to drink, and could not keep a straight, and he was reduced so low that he had to turn to coal mining. That is the only instance I can recollect. Probably the objection that mining engineers might be induced to work at coal mining is a remote one.

25392 Q Is it possible? A I have shown you the exception; I do not say it is the rule.

25393 Q I hope it will not be the rule. That man got employment as a coal miner? A Yes.

25394 Q You have given us an instance of a man who was compelled to accept a lowly position in order to get a livelihood, but, presumably, he does not always continue to be a drunken, but reform, and the miners see in it appointed him as checkinspector. He fills the rank of his former drunken position; which is the man who is most likely to give information to other people—the man who is in poverty, stricken circumstances, or the man who is following his profession? A I do not think that such conditions would occur.

25395 Q That is not an answer to my question? A It was a difficult question and such a long one. I do not know which was the beginning and which was the end.

25396 Q Listen, and I will put it again as briefly as I can. If a mining engineer who is working as a coal miner was appointed by the miners to act as a check inspector, he being at the same time in poverty-stricken circumstances—whether would he, or an absolutely independent mining engineer, following his profession, be most likely to collect information which would be of value to some mining company, for the purpose of getting pay out of them? A I do not see that the honesty or dishonesty of the circumstances of a man would have anything to do with the case. That may be correct.

25397 Q Which would be most likely to take advantage of his position as a checkinspector? A That depends on the character of the miner. I could not answer that question unless you give me two specific cases in which I know the characters of the men.

25398 Q Say the characters of the men are both the same? A I will answer the question in this way. Take the case of an intelligent miner, who was a mining engineer referred to and working as a miner. I do not think an owner could refuse to allow him to be appointed as checkinspector, he not being a mining engineer in practice. He is a coal miner practically, who has been a mining engineer, but, inasmuch as he is working as a miner, I do not see how an owner could refuse to allow him to be appointed.

25399 Q Would you regard such a man as being competent and honest? A Competency and honesty would not enter into the matter. They would tell the owners that they had appointed him and he as check inspectors, they being working miners, and the owners could accept them.

25400 Q Do you think that mining engineers would be so dishonest as to take advantage of their position as checkinspectors for their own benefit? A I hope no such thing would happen.

25401 Q Then why do you object to them? A I do not see that I can answer you any further.

25402 Q You cannot see any valid reason against their acting? A If they are working miners, they are working miners, and not mining engineers, and I do not see how the owners have a right to object to them.

25403 Q Do you object to a mining engineer who is a working miner making? A If he is a working miner, he is a working miner. If he is a man in practice as a mining engineer, I object.

25404 Q I put the question to you—if he is a working miner? A I could not object then.

25405 Q Can you give me the reasons shortly why you object to one man and not to the other. A Well, I do not think that I should like to allow persons who are in the practice of their profession to mining engineers to see through a property. The owners would have no objection to it.

25406 Q Surely, the owners would not object to a qualified man doing this work? A The owners think that the man are quite competent to do the work—I mean working miners.

25407 Q You have told me that they are men appointed to get hold of? A I told that they were a rare commodity among the young miners. The old miners are good enough.

Flower—Dr. J. E. M. Robertson, St. Louis, 1905.

25408. Q The old men will do yet? A Then we should have to remove them from the other column.
25409. Q Should not this work be done by the men who are most competent to perform it? A I do not see anything in the work that the ordinary men are unfit to do.
25410. Q You know they have the power to inspect the shafts, hoists, planes, working places, mine, airways, winding apparatus, all workings, and machinery—you know they have the power to report all these things? A Men who have been working in a mine for a number of years don't know whether the shafts and working places are in proper condition.
25411. Q They might have very little about the condition of apparatus? A They would know whether it was doing its duty. They would take the air, and see whether there was good air in the mine.
25412. Q There might be some defects in the apparatus? A If there were any defects in the apparatus, it would not be doing its duty. I cannot remember that any mining engineer would know more of this matter than would be necessary for the miners to know, under the circumstances. It is not proposed to stop the winding apparatus in order that an inspection of it may take place. The winding apparatus is a simple thing, and really consists of an engine with a piston rod which drives a line. You cannot see the line, or detail.
25413. Q A mining engineer would know more of these matters than miners? A As I say, you cannot see the line—you cannot stop the apparatus in order to examine the different parts of the line.
25414. Q Why not, if necessary? A The Manager is there for the purpose of seeing that all the machinery runs order.
25415. Q The Manager has no right over them while they are making the inspection. You know that it is not necessary for the men any to be stopped? A The law is not the detail when the miners will have all the men in themselves, and then they can do as they like.
25416. Q Do you think so? A Not you do, I do not.
25417. Q Do you agree with me to that? A No.
25418. Q Would you have any objection to remove from the section of the Act the words "who are practical working miners." The rule provides that the men may appoint any two of their number, or any two persons, not being mining engineers, who are practical working miners? A I would let the rule remain as it is at present.
25419. Q Did you not say that you would remove the words "who are practical working miners"? A I do not think I did. You speak in that, Mr. Justice, that I cannot always catch what you say.
25420. Q I will read the rule—

The persons employed in the mine, may, from time to time, appoint two of their number, or any two persons, not being mining engineers, who are practical working miners.

This has been made a rule of court. No person can be appointed to make an inspection who is not actually working as a miner at the time of his appointment. When I want to put in to you in that. Do you believe that the men should be placed upon matters who may not be in employ at the moment. They are employed as check inspectors, but who are given no money should that empling be removed? A They would require to make some provision. Possibly a man may have ceased working many years before. He should not be appointed, and, therefore, there should be some provision.

25421. Q Why should he not be appointed, if he had been working mining men? A I think a man should be working at the time, or within a limited period of his appointment.

25422. Q All we want to do is to remove the words "who are practical working miners." Will you agree to having those words cut? A I will take time to consider it.

25423. Q When will we have you back after you have considered it? A I do not know. I expect the miners would have something to say to that.

25424. Mr. Robertson. Q I understood that you agreed with that. I mentioned the case of Mr. Wynn, who was not working in a mine, but who had been objected to by Mr. Lewis. I understood that you had no objection to a man who was not working at the time? A I would have no objection, if a man had been at work within a limited time before. I would not be a person who would draw his distinctions at all.

25425. Mr. Justice. Q I will put the case to you of Mr. Brown. Under that rule, as it now appears, Mr. Brown, at the end of his year's engagement as check inspector, had to work with him one of the Managers in order to qualify himself for reappointment the next year. You think that the miners ought to have to sign the rule of procedure? A I do not see that you require to get reappointments for a year. I think a man would be reappointed as often as the miners think.

25426. Q The miners should have the recommendation of Mr. Brown's agreement at the end of a year, and before he could be reappointed he had to get an agreement as a check? A I think that is an extreme case.

25427. Q Do you think that the winding of the shaft might be altered a little? A I think it should be. Mr. Brown never did anything all his life beyond winding in a mine. I do not see how the fact of his appointment as a check inspector where the fact that he was a miner.

25428. Mr. Robertson. Q Do you think that the miners would object to Mr. Brown? A No, I would not object.

25429. Q Do you think that the rule should be altered? A Yes, in that respect.

25430. Mr. Justice. Q What are your duties as a miner? A I have no special duty. If the Manager wants miners, I give it.

25431. Q Does your duty compel you to go inside the mine? A No.

25432. Q You have no need to go inside the mine? A I need not come to Edward Kemble even.

25433. Q You often, on a matter of fact, do go inside the mine? A Very irregularly. I very seldom go through Mount Kemble to make a regular inspection, which would take days.

25434. Q How do you sleep at? A Not much. I can't sleep much. I have done it when it was a small one.

25435. Q What the exception of the work which you made with the prisoners men there or their work before the disaster, when were you in the mine before? A I cannot say. I had no time.

25436. Q Would you before? A No, never.

25437. Q Have you no recollection of the time when you were down near the 11th Right? A It would be some weeks before.

25438. Q Before the visit of inspection? A It would not be many weeks before, because I was along with Wilson.

25439. Q Did you go into the 11th Right yourself? A Just in the entrance.

25440.

25140. Q Was it working? A I think they had the last pillar to take out. I went to look at it, and found that.
25141. Q Was that in Nelson's Quay? A Yes.
25142. Q Mr. Lamb had only left seven or eight weeks prior to the disaster? A Yes, about two months, I think.
25143. Q If you went in some weeks before, it would be just after Lamb left? A I think he was appointed to the ship at once. Mr. Rogers made up to the Board, and asked if they had any objection to appoint Nelson.
25144. Q Then it would be almost immediately on the departure of Lamb? A Yes.
25145. Q You said that Lamb was not in a position to express an opinion about the arm likely to fail? A I do not see that he could.
25146. Q Can you tell the Commission how you met? A I told the Commission that it was through Murray, and through some other men's statements, that I knew. I questioned them about it.
25147. Q So we may take it that it was not on your own knowledge? A I had no knowledge immediately prior to the disaster.
25148. Q Your calculation was based on information given you by other people? A You are quite right.
25149. Q Did you get the information after the disaster? A Yes, after the disaster.
25151. Q When they were giving you the information, did they not tell you about 2 feet 6 inches having fallen? A I never heard of it.
25152. Q Do you not think that is strange? A I do not think it is strange.
25153. Q Would it not be a serious failure? A No.
25154. Q Would it not affect the question of duty? A It might. But I do not think 2 feet 6 inches would fall over the whole area. It is not like a road of that sort.
25155. Q You say that the whole of your evidence is based on information given you by other people. Your evidence up to now about, you know, information supplied to you? A Yes. And from this report book.
25156. Q As far as your own knowledge is concerned, you do not know whether it is a faulty pier or not? A I do not say that.
25157. Q What knowledge have you got? A I have been in the Kaitia since the time of them. I always look in the report book. I am the Inspector. I saw you, and had a conversation with you.
25158. Q You never had a conversation with me about you. I want to get it clear from you whether you have ever made an examination with a view of looking whether Kaitia was a safe area in regard to you? A I have often tested for gas, but it was a matter of time. I never had the slightest fear that I should find it.
25159. Q Did you ever take a safety lamp to Kaitia before the disaster? A Oh, yes.
25160. Q Can you give me any single instance? A No, how could I.
25161. Q Was it years before the disaster that you took a safety lamp into the mine? A Oh, some months before. I do not go in with a safety lamp.
25162. Q I want to get this clear—do I understand that you have taken a safety lamp inside the mine? A I have got the lamp from one of the depots, and have looked where there was a fall.
25163. Q Did you go in for the purpose of looking and testing for gas? A Oh, no.
25164. Q Was not that the case? A No, when I saw a fall I would take the safety lamp from one of the depots, but I never turned any gas.
25165. Q Think has been on very rare occasions? A That has never been reported, you see.
25166. Q As a matter of fact, your feeling of security was derived from reading the report book, and not from any personal knowledge of the mine? A No, from both.
25167. Q Mr. Robertson? A Certainly, that there came out of the tunnel mouth—you say there was nothing missing that there did come out, we have it from your evidence that the main tunnel of No. 1 was a wet road. Is that so? A Portions of the main tunnel were very wet.
25168. Q May I take it that the main tunnel in the position of No. 1 was wet? A It was a damp road.
25169. Q A portion of No. 1 was a road? A You are now very old sleep.
25170. Q Would not that go to show the inadequacy of watering to prevent an accident? A If the road was wet, and there was no sled on the road, it would show that there was no need for watering.
25171. Q It would show that watering the roadway was not sufficient to stop an accident? A No, I do not think watering the roadway would be sufficient to stop the flame. It would be dry enough on the road. It was the fact that was always damp or wet.
25172. Q What would be the length of the main tunnel to the junction? A Three hundred yards.
25173. Q Three hundred yards was damp, and there was no fault. If that were so, would it not show that watering three hundred yards of a roadway was not sufficient to avoid an explosion? A No, for as I saw flame, in the case of some explosions, the fact of watering the road would not prevent an explosion at all. These circumstances are very important.
25174. Q There would be no case of prevention in this instance? A In this particular case there would be no question of prevention. Of course there are various opinions held as to watering. Some people find that to use water in a shaft is almost impossible to adequately water.
25175. Q It would not be a wise proceeding to insist on the systematic watering of a mine, using the doubt that exists in the minds of competent authorities as to its adequacy? A Well, I should be inclined to leave that matter to the Government, Inspectors and to the Manager. I really do not think that an outsider, who does not know the particular circumstances, is in a position to give an opinion.
25176. Q Mr. Atter? When you were speaking of the stowage of marks of fire on timber, edges of No. 4, and of the stowage of marks of burning, were you speaking of timber which was standing, or props which were standing, or of props which had been thrown down by the flame? A I do not remember any timber standing there at all. I would refer to any inflammable matter on the road.
25177. Q Were there any inflammable substances on the road, excepting timber? A Not on the roadway side. Only timber with bark on it.
25178. Q Was no old timber left standing? A I think it was thrown. There may have been, or increased prop standing up.
25179. Q Nothing remarkable? A There may have been some timber up through the lifts.
25180. Q Do I understand that you looked twice whether there was any signs of burning? A Particularly—I looked particularly.

Witness—Dr. J. B. M. Robertson, 12 March, 1904.

- 25481 Q On the spiral standing timber? A We looked on all the material we could find. In the dust on the roof, in the dust which had settled on the damaged roof, and on the pews. We never looked at the top of the bell, where it was faulty to look, because some part of them must have come down afterwards.
- 25482 Q Most of the timber was dropped from the bell? A A portion was dropped. Some portion was standing—some of the ends were sticking with one end up.
- 25483 Q Are you speaking of the lower ribs? A I am speaking of the girders.
- 25484 Q They would show no signs of burning? A They might show signs of being dust.
- 25485 Q I am speaking of signs of fire? A In the main tunnel there was a mass of timber. There was the timber nearest out of No. 1.
- 25486 Q Would you expect to find marks of fire in the case of an explosion, upon timber which had been blown down by the explosion? A I think so.
- 25487 Q Would not that timber be thrown by the force of the air before the fire reached it? A The fire would pass among it, because it was piled up in all directions. You had to scramble up over it.
- 25488 Q And all through it you found no signs of heat or dirt? A No sign of heat or dirt.
- 25489 Q Was there any timber with bark upon it? A Nearly all the pews were timber with bark on it.
- 25490 Mr. Robertson. The timber in the main tunnel would be damp? A There was no dust in the main tunnel. In one place there was dripping water, which was carried off by a galvanized iron sheet. All parts were not damp, but there was a little water there from the roof.

WILLIAM HOGGERS was sworn and examined as under—

Examination is read by Mr. Wade—

- 25491 Q What is your name? A William Hoggers.
- 25492 Q You are the Manager of the Mount Kemble Colliery? A Yes.
- 25493 Q First of all, with regard to the 4th Right—do you know how long that 4th Right district has been at work since you have been there? A Four years.
- 25494 Q How long is it since you first began to clear the pillars? A I expect it should be eighteen months or two years.
- 25495 Q Is it not more than that? A About two years.
- 25496 Q Do you remember the December accident? A Yes.
- 25497 Q That was two years more last September? A I believe it was.
- 25498 Q Had you been working at the pillars long before that? A Not very long.
- 25499 Q You worked backwards—you worked from the entrance and towards where the 4th Right goes to a road? A Yes.
- 25500 Q During all the time the pillars had been working did you ever see gas poured? A No.
- 25501 Q Did you ever hear of any gas? A No.
- 25502 Q Did you have numerous falls of coal from time to time? A Yes.
- 25503 Q Did you see any gas visible from gas at anything else after the roof had fallen? A No.
- 25504 Q Interrupted the face of No. 1 heading? You know where I mean? A The entrance end of No. 1.
- 25505 Q Where Morris and son were working at the time of the disaster? A Yes.
- 25506 Q How long had that been the case before the disaster? A A couple of months—perhaps a little more.
- 25507 Q You knew William Hay, the Company's weighman? A Yes.
- 25508 Q Did you have any conversation with him in regard to either the front or back heading—
[Interrupted.]
- 25509 Mr. Jephcott. I object. We have had Mr. Hay here to give evidence.
- 25510 Mr. Wade. Whether the witness had any conversation with William Hay—that cannot be objected to.
- 25511 Mr. Jephcott. The suggestion has been made that Mr. Hay's evidence is not true. I am now asking for particulars.
- 25512 Mr. Jephcott. I object, too. We have had Mr. Hay here.
- 25513 Mr. Wade. He told us that Mr. Hoggers knew about it.
- 25514 Mr. Hoggers. I think it is fair under the circumstances that some questions should be put to Mr. Hoggers about it.
- 25515 Mr. Wade. Q Did you have any conversation with Mr. Hay in regard to No. 1? A Yes.
- 25516 Q What was the object of it? A Mr. Hay was going to clear the gas with a second clear certificate, and he was anxious to go through the mine when there would be any likelihood of seeing gas, and he asked me if I would let him go with Nelson, when the furnace was off. They went to lots of places as well as No. 1 Right. After he had been, he told me where he had been. No. 1 Right was one of the places, and he told me of other places. I asked him if he had seen anything, and he told me that he had not seen anything—he had not seen any gas or anything else.
- 25517 Q Now, before Mr. Nelson was appointed under manager, do you know of your own knowledge whether he had any special instructions, or whether anything was shown to him? A He had no special instructions.
- 25518 Q Did you yourself take him round the mine? A He knew the whole of the mine before he was appointed under manager, because he had been there a number of years as deputy.
- 25519 Q Did he have deputy in different parts of the mine? A Yes.
- 25520 Q Different sections? A There is No. 1 then in any other part of the mine.
- 25521 Q Now, let us come to the day of the disaster itself. You were in Wellingborough at the Ariston Hotel, Coventry? A At the time of the accident—yes.
- 25522 Q What part of the mine did you go over first? A The shaft district.
- 25523 Q What time of the day? A It would be from 4 to half past 4 o'clock.
- 25524 Q Where were you in No. 1? A It would be about 11 or 12 o'clock the same night, as near as I can remember. Perhaps not so late as that.
- 25525 Q What particular part were you in? A I went first of all to the travelling road, and out of the travelling road into No. 1 rope road. I came up to a big fall. I had to turn back to a cut through into the travelling road again. I went out of the travelling road into No. 1 rope road, and I took up towards the fall again.
- 25526 Q Did you get up to the 14th Right at that time? A No.

32527. Q Were you in the face of No. 1 heading? A No, not in the face—I was in the second set-through back from the face.

32528. Q Did you see the bodies of Marvin or his son? A No, but I must have been very near them.

32529. Q You did not go up as far as they went? A No, but I must have gone up within a few yards. I saw the bodies after they were brought out of the mine.

32530. Q Did you notice the appearance of the bodies? A I saw them.

32531. Q Did you notice their hair? A I think their hair was a little stopped, it was nothing very much. I do not think they were hurt.

32532. My Witness. Q Does that apply to the two of them? A Yes, to the father and the son.

32533. Mr. Wade. Q They both had their hair stopped? A I could not say so in both, but the boy, I think, was more stopped. I could not say much about the father.

32534. Q What about Abbe, did you notice him—his head or his hair? A I do not believe I did.

32535. Q Which of the Parsons was it they found in the travelling road towards telephone station? A Tom.

32536. Q Did you see him in the mine or after he had been brought out? A After he had been brought out.

32537. Q How would you describe his appearance? A His hair was stopped.

32538. Q When did you first get into any heat? A That same night. I did not get well into it. I remember passing it. On my way down I turned into the rope road, and then turned into the travelling road, and as I was going up to the fall I saw the body of Abbe. That was before I got to the fall. I went back to the travelling road again towards No. 1 main level, passing into the 4th Right. When I got opposite the 4th Right I stopped there.

32539. Q What did you notice? A I noticed a little heat about the 4th Right.

32540. Mr. Hester. Q You are accustomed to the use of a thermometer? A Yes.

32541. Q What do you think the heat would be? A Somewhere about 100 degrees.

32542. Mr. Schermer. Q Was it not a little? A No, heat.

32543. Q I was passing a mine on the way and a half before, and I did not notice any heat, but I noticed a peculiar smell? A I saw the other men's attention in it—Walker was one and Murphy another.

32544. Mr. Hester. Q Was there any action in the air? A Yes.

32545. Q There appeared to be a dead calm? A Yes, a dead calm.

32546. Mr. Wade. Q When did you make an examination of the 4th Right roadway? A I was out up there then.

32547. Q A few days afterwards? A Three or four days afterwards I was along there with Mr. Robertson.

32548. Q And then there was a mine in the 4th Right roadway before the disaster? A Yes. When we took out the pillars, we took the mine out of the travelling road into the 4th Right.

32549. Q While you were working the 4th Right? A Yes.

32550. Q Do you remember the timber right or nine days before? A Yes, the timber was lying in the 4th Right.

32551. Q Where? A In a narrow place between the travelling road and the place where they were taking out the pillars.

32552. Q What became of the timber? A I do not remember what became of the timber. I think it was left there.

32553. Q How was it lying now? A Along the right-hand side, I think.

32554. Q I think it would be clear of the roadway? A Yes, so that they could take the ships away.

32555. Q How was it supported? A In the middle way, with props up to the roof here and there.

32556. Q What was the floor of the 4th Right like? Was there anything in the way of rubbish or dirt there? A Yes, a little rubbish was lying there.

32557. Q Where? A On the side.

32558. Q What was it? A Small dirt and lumps of stone were lying mixed up. I could not say that it was dirt. There was no dirt. There may be a little—there was sure to be a little dirt.

32559. Q Within the 4th Right had been working, was there any support necessary for the 4th Right roadway between the travelling road of No. 1 and what they call the good edge? A I do not think there was any support in the narrow place, but there may have been a few props.

32560. Q Do you recollect whether there were any shocks before you finished? A I do not think there was any in the narrow road.

32561. Q Look at the plan [Exhibit 27]. Here is the travelling road, and here is the good edge—between these two points? A I do not believe there were any shocks between the travelling road and what is known as the good edge, in the 4th Right roadway.

32562. Q Can you remember if any shocks were laid after you finished the 4th Right? A I cannot say there were any there. After we finished, the timber was piled up in that narrow place. We had to pile it up for the sake of getting room for it. Somebody may have taken out of a shock, but I do not think there was a shock there.

32563. Mr. Hester. Q The timber would be piled up against the edge? A Yes, against the side.

32564. Q Laid along here and abut? A Yes, there was so much timber taken out of the old workings that they had to pile it up.

32565. My Witness. Q Was that in a narrow part? A Yes, it was in a narrow part. I remember that you asked me and asked me, what did I think of the timber? You asked me what way did I think it had gone? I said it had gone where. I thought at the time it was a shock. I have thought about it since, and I do not think it was a shock. I said that it appeared as if it had been going round and round. I believe that was all that passed between you and me. Perhaps you may remember more.

32566. Mr. Wade. Q While you were in the 4th Right, did you ever know of whole pillars being lost? A No, I did not.

32567. Q Is the correct—that the roof would come down and bury whole pillars of coal because you were too stung to supply timber to keep the roof up? A No such thing, there was some very security of timber there, to my knowledge. I am sure there was not.

32568. Q Was there any difference with regard to dust in No. 1 Right before the disaster and after it? A Yes.

32569. Q In what way? A There was a lot more dust to be seen after the disaster than there was before it.

[Witness—W. Rogers, 12 March, 1905.]

- 20470 Q In what part? A In the 5th Loh. You could see places where there was more dirt after the disaster.
- 20471 Q Were you then watering more you remained operations? A Yes.
- 20472 Q In what part? A We have been watering in the 4th Loh and in some parts of the 5th Loh. We have been taking water out of the 5th Loh and in this way we have got rid of the water and laid the dirt.
- 20473 Q You have got a tank with a spray attached to it? A Yes, we have got five of them now. I have not got them all working.
- 20474 Q Have you used them on the roof? A I had to stop watering the roof. I put a spray of water on the roof, but it affected it so much that I had to stop.
- 20475 Q Now, have you got some wonderful pipes in your pocket? A Yes. [Exhibit No. 24.]
- 20476 Q From where did you get it? A From the under-manager, Mr. Heston.
- 20477 Q When? A I don't say a couple of months after the disaster, if not more.
- 20478 Q You were not there when it was found? A No, it was given to me afterwards. I saw the place where it was found.
- 20479 Q Where were you told it was found? Were you in the locality of the fire in the night when first? A I was shown where the pipe was found.
- 20480 Q Did you see this pipe on the land? A Yes.
- 20481 Q Do you remember going there? A Yes.
- 20482 Q Where the fire was? A Yes.
- 20483 Q Was there any building concerned at that place? A Yes, there was brickies concerned, and paper also.
- 20484 Q Where was the building concerned—was it standing or lying down? A There was a small place on the pipe according to what the under-manager told me.
- 20485 Q The other pipe was on the floor, and the paper too? A Yes.
- 20486 Q Was any part of that which was lying on the floor burned, or apparently burned? A No, I did not notice any marks burned, nor any of the paper which was lying there.
- 20487 Q Did you notice anything like a hole in the canvas? A A hole in the canvas?
- 20488 Q In the canvas lying on the floor? A I could not say I noticed that.
- 20489 Q Could you say, of your own knowledge, whether the man ever came to that place for land? A Of course the men would sit about there and take their lunch, but I do not know of my own knowledge that they would.
- 20490 Mr. Anderson. Q What was a land? A On the left hand side of the land.
- 20491 Q It would be at the time? A There was a land in the road going up.
- 20492 Q Was this was not at the time? A The road was turning up by the land; and this was on the left of it.
- 20493 Mr. Heston. Q The land turned to the right, and this was to the left of the road? A Yes.
- 20494 Q Where were the papers? A I saw some papers on the cut-through going to the land, and also in the road.
- 20495 Q Now, did you carry any of those land men with a match in his hand? A I did not see him; but I heard of it afterwards.
- 20496 Q Was your witness? A, Mr. Hay told me first and the under-manager.
- 20497 Mr. Anderson. Q Who was the under-manager? A Mr. Heston. We were just talking about it. They said, "We heard it several times, but we did not think it was worth reporting." I think it was either Handy or Nelson—it was none of the men—who saw a match between the man's fingers.
- 20498 Mr. Bruce Smith. Q This is the first I have heard of it.
- 20499 Witness. I was surprised when I heard of it.
- 20500 Mr. Anderson. Q Why should you be surprised at men having matches? A Because I was not told about it. I heard at the time of men having their lights, and lighting these lamps afterwards.
- 20501 Q Yes, that. I have had evidence of that.
- 20502 Q How did you ever hear of a light coming from gas-pipe under coals? A Yes.
- 20503 Q And you were last operation of it? A Yes.
- 20504 Q Where? A At home in North Wales. I met it myself. There was never known to be gas there at all. It was fit after a shot had been fired—what the miners call a hanging shot, and the smoke was coming through the rocks. The coal was not down. The smoke was coming out near the roof.
- 20505 Q I believe you lost a man in this disaster? A Yes, an adopted son.
- 20506 Q Now there is one thing that I want to ask you about. Have you had any extra deputies appointed since you resumed operations? A Yes.
- 20507 Q How many additional ones? A I think about four more. Well, we call them deputies, but they do a lot of working as well as deputy work.
- 20508 Q What is the nature of their deputy work? In these my work, those now which was not done before by the deputies? A Yes, the shovelling.
- 20509 Q How many deputies are employed at that? A Oh, I dare say there will be four—two in the shaft disaster and two in No. 1 disaster, attending to shovelling the drag there.
- 20510 Q We have been told that Huggins says on the waste workings? A Huggins says on the waste workings every day, and has done so since the disaster, or at least four or five days a week.
- 20511 Q On other days what is he doing? A The repairs.
- 20512 Q When you say that he inspects the waste workings, do you mean that he goes over the whole of the mine? A The whole of the mine—that is, a part of a working day.
- 20513 Q Does he examine the whole of the mine in the course of a week? A Yes.
- 20514 Q Does he do any other work on the days that he inspects the waste workings? A No, he only inspects the waste workings on those days.
- 20515 Q In regard to the fire, at night-time there are men on duty in the number of men? A Yes; there are two men on at night time. There is no extra man doing the working because the day deputy has not the time to do it.
- 20516 Q On the night deputy, do the working? A Yes; and there is no much more important work—there is more work for the deputies to do.

20517.

- 20417 Q Was the work increased? A There is more work, but only in the way of standing and looking after repairs.
 20418 Q What do you mean by repairs? A Repairing the roads along the disaster.
 20419 Q You do not mean the ordinary wear and tear? A No, getting the roads in working order after the disaster. We have not finished yet.
 20420 Q For that special work you have a man at night? A Yes.
 20421 Q For repairs? A Yes.
 20422 Q Does he do the increasing? A Yes.
 20423 Q The same men that look after the repairs? A They do a little of each.

Cross-examined by Mr. Lynght. —

- 20424 Q What is your idea of waste workings? A. My idea of waste workings—in what way?
 20425 Q What are waste workings? A Waste workings are places where we have taken the pillars out and where the roof has fallen.
 20426 Q Do you mean places marked on the plan as gull? A Yes.
 20427 Q You would not call a place where the pillars have not been extracted, but are standing, and not being worked, a waste working? A No.
 20428 Q If the levels are drawn? A No.
 20429 Q You would not give that name to a place where the pillars are not being worked? A I would not call a place working but a place waiting for the pillars to come out.
 20430 Q Such a place could not be defined as a waste working? A No.
 20431 Mr. Meier? Q How would you speak of it generally? A I would speak about the pillars being up, or the pillars being taken out. We do not call it a waste working until the pillars are taken out.
 20432 Q If you wanted to describe in such a part of the mine, how would you describe it? A I should say "The pillars in the 1st Right, or the pillars in the 1st Right—you know, where the pillars were not taken out."
 20433 Q That is all I know about them. I should say, "We want to take them out."
 20434 Q If you were talking somebody where you had been, where the pillars were standing, how would you describe it? A We should describe to where we had been, all the workings.
 20435 Q You say the expression generally used is "the pillars"? A We do not call them pillars until we start to take them out.
 20436 Mr. Anderson? Q Do you call these old workings? A We might say that we were going to take pillars out of such and such an old head.
 20437 Q If there were a number of pillars standing for some time, would not they be old workings? A. Yes. We would call them old workings.
 20438 Q Would not that general term be applied to the district? A We might call them old No. 4. We might say, "We are going to take the pillars out of old No. 4." Or No. 5, or so on. Or we might remember the name of the head.
 20439 Mr. Smith? Q If you had heads that had been temporarily abandoned, you would say that you were going to start an old head? A Yes.
 20440 Q The term generally used is "old workings"? A Yes.
 20441 Mr. Meier? Q It is strange to get lost in the mine, would you say in a part in the old workings? A Yes.
 20442 Mr. Smith? Q You might get lost in the old workings in No. 4? A Yes. He could get into the old workings where the pillars had not been taken out.
 20443 Mr. Anderson? Q A waste working is a gull? A We call them waste where it is deep.
 20444 Mr. Meier? Q What do you call a working that is not being worked, round which the air is circulating? A We would call it a working that is not being worked, or a working, or a cut through.
 20445 Mr. Lynght? Q You remember the evidence you gave at the request of Mr. Lynght? A I cannot remember it all.
 20446 Q Do you want to take any part of it? A I do not think I was quite responsible for all I was saying at the time. I might want to alter some of it.
 20447 Q Is there anything that you remember you want to alter? A No.
 20448 Q You were treated fairly in your examination? A I think you were rather hard on me sometimes.
 20449 Q You were treated fairly? A It depends on what you call fairly.
 20450 Q Had you time to answer the questions? A I believe I had.
 20451 Q The questions were all put plainly to you? A Perhaps they were, but you must remember, Mr. Lynght, that I am not well up in the English language. If you spoke to me in Welsh about the mining town, I could answer anything you wanted me to answer. I must admit that I do not know you when you mention it as in my words—I do not know what they mean.
 20452 Mr. Meier? Q Were you brought up to speak Welsh only? A To speak Welsh only.
 20453 Q Up to what age? A Up to 10 or 15 years of age.
 20454 Q English came as a strange language to you? A Yes.
 20455 Mr. Smith? Q You can speak Welsh now? A Yes.
 20456 Mr. Lynght? Q Do you want to alter anything in your evidence now? A In the evidence where I am not well up.
 20457 Q Can you tell me why the waste workings were not examined once a week, as required by rule 10? I do answer.
 20458 Mr. Smith? A We were going over the mine ground that was travelled at the instant. The idea was to have Mr. Rogers here as fresh matters only. Mr. Lynght is travelling over the mine ground as we speak with at the moment.
 20459 Mr. Meier? It may be that, if Mr. Rogers called quickly now, he would be able to give more evidence than he gave before. He might be able to give particular matters without going over the whole of the ground again.
 20460 Mr. Lynght? Q We have had some evidence from Mr. Smith on this matter. What reason do you give that the waste workings were not examined once a week, as required by Special Rule 10? A When I read them, I thought that the rule meant once a week as far as practicable.

Edmonton, W. Rogers, 16 March, 1933

23480 Q That is what you told us at the inquest? A That is the way it was. I had a talk with the Manager in Mr. Remick's room, and it was reported that way, and the Inspector saw the report. I had no reason to think that it should not be done the way we were doing it.

23481 Q Is that all you want to say in answer to that? [He answers.]

23482 Q Is it a matter of fact that Letch pointed out to you, when he went to Kamla, that Special Rule 10 was not being carried out, and that there should be a special weekly examination? A No, it is not correct.

23483 Q Did Letch make any statement to you when he went to Kamla about the inspection of the waste workings being only once a month? A No. But I remember that some talk passed between Letch and myself about it.

23484 Q Did you tell Letch that once a month was the way they were examined when you became Manager, and it was the way you carried it out? A I might have done so, but I will not swear it.

23485 Q Do you rely on the explanation given at the inquest that you altered the rule? A I did not swear it, I misremembered it.

23486 Q Can you give us the area of pillars remaining in the 4th Right when Mr. Letch left? A I think I can. I think on the right-hand side the first pillar was left, from 35 to 45 yards long. On the left there would be two pillars each perhaps 10 to 15 yards long.

23487 Q I want you to say whether that is true. Is it evidence given by Mr. Letch—

"Q Did you draw the Manager's attention to the fact that the rule was not being carried out. A Yes."

"Q What was the answer? A That it had been the custom of the colliery while he was Manager, and also the custom of the colliery before he was Manager."

"Q Did you consider you did your duty? A I was not Manager. I was under-manager. I pointed it out to him, and that was the most I got."

"Q Who was the Manager? A Mr. Rogers."

"Q Did Mr. Rogers give you any other answer? A Not that I am aware of."

"Q Was any question raised as to what the rule meant? A What do you say?"

"Q Can you tell the Commission whether any question was raised as to what the rule meant? A No, Rogers was under the impression that he was carrying out the rule. I said, 'No, he was not.' He said he was, because he was examining the waste workings every day."

"Q The explanation was that they were examining them every day? A Yes, he said that they were examining them every day."

"Q But that was not an excuse for not having a report on writing? A No, he told me that that was the rule of the colliery."

"Q You took no steps to have it reported to the Inspector? A No, I had no right."

Is that true? A I do not remember it.

23488 Q Do you remember his pointing out that you did not carry out the rule? A No, I do not think so.

(The Commission at 4 p.m. adjourned until 10 o'clock the following day.)

FRIDAY, 16 MARCH, 1933, 10 a.m.

[The Commission met at the Supreme Court, Edmonton, Calgary.]

Present:

C. E. E. MURRAY, Esq., D.C.J. (President).

D. A. W. ROBERTSON, Esq., Commissioner.

D. KITCHIE, Esq., Commissioner.

Mr. Bruce Smith, Barrister-at-Law, instructed by Mr. Wood, Crown Solicitor's Office, appeared on behalf of the Crown.

Mr. A. A. Atherton, Chief Inspector of Coalmines, assisted Mr. Bruce Smith.

Mr. A. A. Lynght, Solicitor, appeared on behalf of—

(a) the representatives of deceased miners, widows, &c. (victims of the explosion);

(b) the employees of the Mount Kemble Colliery (miners, washers, &c.);

(c) the Miners Colliery Employees' Association (The Southern Miners' Union).

Mr. C. G. Wade, Barrister-at-Law, instructed by Messrs. Curran and Barry, Solicitors, was present on behalf of the Mount Kemble Coal and Oil Company (Proprietors of the Mount Kemble Mine).

(Mr. J. Garlick, Secretary to the Commission, was present to take shorthand notes of the evidence and proceedings.)

Mr. W. Rogers, previously sworn, was recalled, and further examined as under:—

Cross examination by Mr. Lynght.

23489 Q Up to the time that Letch left, the end of the gird had fallen solidly, had it not—the end of the Miners' gird? A I could not say that it was fallen solidly.

23490 Q Did you notice whether it has fallen or not? A Yes, it had fallen some.

23491 Q I mean the end that had been taken out up to the time that Letch left—had not that end, as Letch said, fallen roughly? A I am not sure you.

23492 Q Had it not fallen solidly and not slightly? A I could not say that it had fallen solidly and not slightly, but I know that it had fallen.

23493 Q A large part of it had fallen? A Yes, a large part of it.

23494 Q And you told us yesterday that there was one pillar on each side remaining to be taken out after Letch left? A Yes, there was one on the right-hand side, and two bits on the left-hand side.

23495 Q Just look at this plan, drawn by Mr. Letch. As you see, the 31-yard pillar is not touched at all—that is left alone, in my view to the back heading?

23496 My Attention? Q Is that so? A That is so.

23497.

22476. *Mr. Lygault* [Q] Now then, the 8-yard board adjoining the 10-yard pillar had fallen at the time Litch had fallen? A It was not fallen right to the bottom. It had fallen as far as what we call the middle pillars—we will say within about 50, or 55, or 60 yards of the 4th Right.

22477. [Q] And was that on both sides of the 4th Right that it had fallen that way? A No, the pillars on the left-hand side—they were working a little more than on the right.

22478. [Q] And the 8-yard board next the 10-yard pillar on the left of the 4th Right fell at the time Litch fell? A I would not be certain about that.

22479. [Q] Then we will leave that. Then, adjoining that 8-yard board is a 10-yard pillar on each side? A It would be more than 10 yards on the right-hand side, and a little less, perhaps, on the left.

22480. [Q] I mean 10 yards down the 4th Right? A Yes.

22481. [Q] Now, was that pillar there on the right-hand side the only pillar on the right-hand side to be taken out after Litch had left? A I believe it was.

22482. [Q] And on the left-hand side there were the 10-yard pillar, and part of another pillar, another 10-yard pillar? A Yes.

22483. [Q] And that was all? A Yes, about 10 yards in.

22484. [Q] Will you tell me, please, when the 10-yard pillar remaining to be taken out when Litch left was actually taken out? A Yes.

22485. [Q] Where? A Where he left.

22486. [Q] Not how long? A Oh, about ten days before the accident. I believe it was about that.

22487. [Q] Now, when that 10-yard pillar was taken out on the right-hand side, was the one on the left-hand side also being taken out? A Yes.

22488. [Q] Both working together? A Yes, both working together.

22489. [Q] And, when Morrison speaks of a fall 1 foot 4 inches in height, does he refer to a fall from where these pillars had been extracted? A I could not say what he refers to.

22490. [Q] Well, as a fact, we are not taking two pillars, the 10-yard pillars on each side, and the small bit of the other 10-yard pillar on the left side, all that had to fall? A All that had to fall; but you will excuse me, the two on the left-hand side were taken out a little bit before the one on the right.

22491. [Q] Did the roof of the two on the left-hand side fall almost within a few days of when the pillars were extracted and the timbers driven? A I could not answer that question.

22492. [Q] Do you know when it did fall?

22493. *Mr. Wicks*: Only from hearsay.

22494. *Mr. Brown*: I understood Mr. Rogers to be Manager of the mine, and he was certainly to ask about the information which he got as Manager from his subordinates.

22495. *Mr. Lygault* [Q] Do you say that the roof of the two on the left-hand side, that is the 10-yard pillar and the remaining part of the other 10-yard pillar, fell within a few days of when the timber was extracted, after the coal had been taken away? A When the timber was taken out, some of it would fall—what we call the timbers.

22496. [Q] And what would be the height of that fall? A About 1 foot to 18 inches, perhaps.

22497. [Q] And, after that, how long did the roof remain up, so far as you know? A Well, I think I called there about two or three days after the timber was driven, with Nelson, and it had not fallen then, that is, two or three days before the accident.

22498. [Q] Was the roof working at that time? A No, it was fairly quiet.

22499. [Q] Now, regarding the pillar on the right-hand side, where did that fall? A That is what I mean. That was standing, only the timber was taken out where it was there then.

22500. *Mr. Robinson* [Q] When was that? A I think it would be about four days before the accident.

22501. *Mr. Lygault* [Q] I was speaking, first of all, about the pillars on the left-hand side, and I want to know when the roof fell from those two pillars on the left-hand side? A I could not say about when they fell.

22502. [Q] And do you know about when the roof fell from the 10-yard pillar on the right-hand side? A No, I could not say. A little was fallen, you know, when the timber was taken out.

22503. [Q] Then do I understand that the whole roof of the 10-yard pillar on both sides was fallen in small pieces when you went to have a look at it? A Was falling in small pieces.

22504. [Q] And, if it would continue to fall in small pieces, as far as you could judge, knowing your experience of persons falling? A It does not seem like that. After the small bits, and when it has plenty of room to come, it comes in a body.

22505. [Q] But had not these boards on each side filled up when you went to look? A I could not say that they had filled up.

22506. [Q] But almost filled up—there had been a fairly substantial fall to the timbers? A You see the pillars on each side kept them up a bit.

22507. [Q] And was not there a fairly substantial fall in each of the pillars on each side? A I do not know what you mean by "fairly"; there was a fall.

22508. [Q] About how high, in your opinion? A About 3 or 5 feet, perhaps.

22509. [Q] Of the timbers? A Yes, I could not say how far up.

22510. [Q] Now, among that pile, and knowing as you did how much roof there was to fall, was there any possibility at all of a fall coming which would be sufficient to drive out one of any great velocity? A Yes, I believe that there was.

22511. [Q] Have you made any calculations at all? A No.

22512. [Q] To determine the velocity? A No, I have not.

22513. [Q] Do you know that Morrison stated that the roof had fallen 3 ft. 6 in. a week before the disaster? A No, I do not know.

22514. [Q] Do you know as a fact that the roof had so fallen? A I know, as I said before, that a little was fallen.

22515. [Q] What would you call "a little"? A Oh, about 1 foot or 18 inches.

22516. [Q] Did not you give this evidence at the inquest, "I heard Morrison say that the first fall in the 35-acre goaf was fairly light, about 3 or 4 ft. deep, and, after the first fall, there would be, perhaps, a 1 foot cavity in the roof—that would be 3 feet higher than the road leading into the mine"? A Yes, I might have said it.

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25713. Q Well now, was not that moment? Would not your memory be better then than now? A I do not know as much about that. I do not think it was.
25714. Q Now, knowing that the coal might fall at any minute, why did not you have the men withdrawn from below? A Why did not I have them withdrawn?
25715. Q Yes; knowing that the coal might fall at any minute, why did not you have the men withdrawn from below?
25716. A Yeah! I hope of where!
25717. Mr. Lyngstøl? Q I hope of the 4th Right? A Well, we did not think there was any danger, or else we would have withdrawn them.
25718. Q You would not see that, with a fairly large crew, according to you, to fall, there was a danger?
25719. A No, the men would have fallen as usual once, it would give them sufficient warning.
25720. Q How would they know? A Oh, it would be, perhaps, breaking, cracking, clinking, small pieces falling before the large body would come.
25721. Q Was it clinking when you were there? A I do not think it was.
25722. Q If you did not put a man on to watch it, how would the men below know whether it was breaking or clinking? A They would watch it themselves, as well as the men going in to make the examination.
25723. Q How could the men below watch what happened down the 4th Right? There would be no man working in the 4th Right within a week of the disaster, and I want to know why you did not withdraw the men along the 4th Right when you knew that the coal might come down there, and leave it might do damage?
25724. Mr. Wade? I object to the question. After asking the question from there in the same way, Mr. Lyngstøl gave in the words at the very end, "and you knew it would do damage."
25725. Mr. Moore? Mr. Lyngstøl said "it might do damage." The witness, of course, if the question was put in a misleading form, can draw attention to it, and say that it would not do damage.
25726. Mr. Wade? Yes, but the witness does not always make these little additions to questions.
25727. Mr. Moore? I should think it was an addition that a witness would notice; although, of course, it is not fair to add something to catch a witness—to add something to the question which the witness does not intend to include in his answer. I would suggest, Mr. Lyngstøl, that you might put your questions in a simpler form.
25728. Mr. Fiske? Q Mr. Rogers, I think you said, in answer to a question by Mr. Lyngstøl, that the men would know when a fall was likely to take place, on account of the coal going underneath through small falls, in their run tracks? A I thought he meant the men in the 4th Right, taking the pillars out.
25729. Q When I want to ask you in this form, your experience of all this coal at it broke, how long are those warnings given prior to the fall generally taking place? A It just depends on the nature of the coal. All the coal are not the same in Kenilworth Mine, as you know. Some parts of the coal might give more warning than others. If it is a soft coal, it would not give so long a warning.
25730. Mr. Bruce Smith? Mr. Smith gave us very much evidence in regard to that point. In the 4th Right, he said it would fall as soon as the timber were taken out, in the next morning.
25731. Mr. Adams? Q From your knowledge of the nature of the strain in the 4th Right, what length of time would it generally give a warning of that description? A It might give fifteen or twenty minutes, perhaps.
25732. Q In other words, the small falls would be coming down to dots and dashes for fifteen or twenty minutes before the bigger fall would take place? A Something like that.
25733. Q That is what you think it would take in the 4th Right section? A Yes; I think that part would take that much. Because it is a good strong coal, a hard coal.
25734. Q And then, when the big fall did take place, when in your opinion, based on experience, as to how it would fall, would it fall off in one piece, or would it come down, probably, the lower end first, and drag along until it got to the end and the pillar? A I believe it would come down in a whole body.
25735. Q Do you mean your answer to convey that the part of the coal over the pillar would fall down squarely with the part at the lower end? A I believe it would, because it is a big pillar, a 20 yard pillar, and the coal would break by the side, because of the coal being so hard, and it would break as it is observed away.
25736. Q But would it break without having the pressure from the beam and, which might break away a little before the rest did? A It might hang a little.
25737. Q What is your experience with regard to that, that it comes away from the solid part at the same time as at the lower end? A Yes, just the same, just the same time.
25738. Mr. Lyngstøl? Q What has been the largest fall since that you have known to fall entirely on Kenilworth—is it high and wide? A Oh, I have seen pieces that 40 and 50 feet.
25739. Q What length—I mean solid, not broken? A Yes, solid pieces; if they have plenty of room, they would come down like that.
25740. Q What have you seen? A I have seen them that did, but I could not exactly tell you the length.
25741. Q Well, roughly? A Even as a piece, perhaps.
25742. Q And how much in width? A Well, perhaps about the same.
25743. Q Well, on the outside, it would appear? A About that.
25744. Q That is the largest you have seen. Now, according to you, I think the area of the fall in the 4th Right would be about 40 yards square? A Yes, I did not measure it; but as near as I could see. The pillars were taken out.
25745. Q And therefore, a fall of that magnitude might cause considerable danger? A Yes, it might.
25746. Q Is not that so, that a fall of such a magnitude was a source of considerable danger? A I never saw anything serious happen.
25747. Q But would not the mere fact of an area 40 yards square being waiting to fall be a source of danger? A No; I would not say that it was.
25748. Q Then, do you consider that there was no danger from a fall of 40 yards square? A No; especially when all the men were away from there and the props taken out.
25749. Q And you do not think there is any danger to be anticipated from such a fall? A No, I did not.
25750. Q Do you see? A I do now.

- 25704 Q What danger do you think is to be anticipated? A From what has happened!
- 25705 Q What danger do you think is to be anticipated now from such a fall? A That it would send out a great force of air with the sudden fall.
- 25706 Q Is that the only danger? A Well, that is the only danger that I would think—[Interposed.]
- 25707 Q Was not that danger just as apparent to any person before the disaster as afterwards that it might do a thing like that? A Yes.
- 25708 Q Was it apparent to you that it might do so very, force out a lot of air? A It never happened before.
- 25709 Q But was it apparent to you that the fall might do such a thing? A No, I never thought it could do such a thing.
- 25710 Q But, I tell you, would not you see that it might do such a thing? A No, I did not see that.
- 25711 Q You did not? A No.
- 25712 Q Then it was not till after the disaster that you could see the possibility of any fall in the 4th Right to have cut air?
- 25713 Mr. Moore: I understood Mr. Rogers to say that he had never known such a thing to happen before.
- 25714 Mr. Wade: He said he did not think it possible. And now Mr. Lyngstøl turns round and puts in "possible", which makes a good deal of difference.
- 25715 Mr. Lyngstøl: Q When did it first come to you that the fall in the 4th Right might have forced out a considerable body of air? A Just at the time of the accident, just after the accident.
- 25716 Q Before you had been to see the fall? A No.
- 25717 Q After you had been to see it? A After.
- 25718 Mr. Stetson: Q Have you, within your experience, had falls equally as large as seen as that which occurred in the 4th Right, in your opinion? A No, I do not believe so ever here.
- 25719 Q Not during your whole experience? A No, I do not think so.
- 25720 Mr. Lyngstøl: Q Did you come to say that the largest fall you have known was if that again?
- 25721 Mr. Wade: No, the largest still.
- 25722 Witness: I mean one block of stone.
- 25723 Mr. Lyngstøl: Q Now, you say that this occurred to you just after the disaster? A Yes.
- 25724 Q But were not the conditions there present, and should it not have occurred to you before the disaster, that the fall might force out a great volume of air? A It did not occur to me that there was any danger, that anything serious would happen, when that fall would take place; or, no, if it had, I would have taken precautions.
- 25725 Q What would you have done? A I do not know what I would have done.
- 25726 Q Do you not know what to do when a heavy fall is anticipated? A Yes, would I see it.
- 25727 Q Do you mean that you do not know what a Manager should do when a heavy fall is anticipated? A Yes, but I would have to see the place.
- 25728 Mr. Moore: Q If you did see the place, and if you did find from the appearance of the place that a very heavy fall was likely to take place quickly and suddenly, and that it was big enough to be likely to drive out a dangerous quantity of air, what would you do then? A I would try to save the energy in things body like that, if I thought it was going to do any damage, Your Honor.
- 25729 Mr. Stetson: Q How would you do it, how would you saving stone come into question? A I might perhaps put shocks under it, and try to break it, build wooden pillars, and try not to let it come in a large quantity.
- 25730 Mr. Lyngstøl: Q Did you put any shocks in the 4th Right to prevent its coming in a large quantity? A No, there were one or two shocks left there that we could not take out. I believe there were three or four.
- 25731 Q Where were those three or four shocks left in the 4th Right? A They were just under this area that we are talking about.
- 25732 Q This area of 44 square yards? A Yes.
- 25733 Mr. Wade: Forty five yards square.
- 25734 Mr. Lyngstøl: Yes.
- 25735 Mr. Stetson: Q Then that would have the effect of breaking up the fall? A Yes, that would have the effect of breaking up the fall, and preventing it from coming in by blocks.
- 25736 Q Then it could not come in one big block? A Yes.
- 25737 Mr. Lyngstøl: Q Will you show me on this plan exactly where you know those shocks to have been? A I could not. I could not say whether it was a correct plan.
- 25738 Q It is drawn by Mr. Leitch? A It may have been, but it may not be correct, all the same.
- 25739 Q Just a minute. I want to know the exact position of those shocks, can you point out where the shocks would be situated? A I could not say.
- 25740 Q Tell me how far from the 4th Right, either on the left-hand side or the right-hand side? A They were along the 4th Right roadway, and perhaps there would have been one on this side and two on the other side.
- 25741 Q Did you see those there? A I saw them.
- 25742 Q Then you ought to know where they were? A Well I did not measure the distance.
- 25743 Q Where did you see those there? A I saw them many a time.
- 25744 Q Where did you last see those there? A About a month or so, or a couple of months, before the accident.
- 25745 Q And do you know that those four shocks at least were never removed? A I was told that they were not.
- 25746 Q As far as you know they were not removed? A As far as I know.
- 25747 Q Who told you they were not removed? A Horwood.
- 25748 Q How high were they built? A From the floor up to the roof.
- 25749 Q And what was about the size of the shocks? A About 4 or 5 feet square.
- 25750 Mr. Moore: Q They were wedged up to the roof? A Wedged up to the roof.
- 25751 Mr. Lyngstøl: Q Now, would you tell me how many were on the left side, and how many were on the right side of the 4th Right? A There ought to be two on the left and one on the right.

12400. Q That is only three? A I need three or four. To the best of my memory that is where they were.
12401. Q How far from the edge corner of the 30 yard pillar that was not touched would the first shock be? A I think it would be in the middle of the first board.
12402. Q On the left-hand side? A Yes.
12403. Q And where would the next shock be? A On the opposite side, on the next board.
12404. Q On the right-hand side? A Yes.
12405. Q And where would the next one be (shock)? A I think there were two on the left-hand side on the middle of one board, and one on the other side. I think that is how they came, I am not certain.
12406. Q Now, if those shocks were, as you say, built tightly up against the roof, would it not be impossible for the roof, where those shocks were, to fall in a solid body—would not the shocks break the roof? A No, the heavy fell coming would swing the shocks—shake them over.
12407. Q But would not the shocks themselves, being there, prevent a heavy fall, by breaking it where it would come to the shocks? A They might, a little, but they would not have much effect as such a gross one as that.
12408. Q But, with the boards already partly fallen, and with the shocks supporting the corners of those boards, does it not necessarily follow that the fall of the roof must be broken? A It is very likely.
12409. Q And was not that really the object of having the shocks there? A No, it was because we could not take them out.
12410. Q They were in sight, all right. Now, after the disaster, did you get in anywhere near any of those shocks to see them? A No.
12411. Q You never got that far? A I never got that far.
12412. Q Do you know whether any other exploring party got that far? A No, I do not.
12413. Q Then, may I take it, that so far as you know, no person got beyond the first board, or the position of the first board, adjoining the 30 yard pillar, after the disaster? A I never knew that anybody got as far as the first board.
12414. Q Is that any evidence given concerning a heavy fall over a large area would be a supposition, Mr. Rogers, because it would be impossible, really, to see what had fallen? A You could not see what had fallen.
12415. Q Is it not quite clear that it would be a mere supposition that there had been a large fall in one block, because it was impossible to get any distance beyond the 30 yard pillar to see? A You could get not very far from it.
12416. Q But it is clear that it is a mere supposition? A. You could not from the mouth of the hood that it was a big fall?
12417. Q Then it was a mere supposition that it was one fall in one block? A No, I think you could easily picture that it was one big fall.
12418. Q You could easily picture? A. Men of experience, when they see a fall like that, know, from what they see, that it has been a big fall and that a big fall has taken place, without going through it.
12419. Q Now, when the shocks are in like that, so tight that they cannot be withdrawn, is not the effect of the fall that the floor runs up and comes it, that the pressure of the shock below, with the weight of the strain above, forces the shock down, and forces the floor on each side up to meet the roof? A. Yes, the shocks would do that.
12420. Q That is the effect of pressure on a shock, that the floor on each side of it, when the heavy pressure comes on the shock, will surge up and meet the roof? A. It is in the pressure of the roof.
12421. Mr. Stenhouse. Q That of course would depend on the nature of the floor? A. Yes, a good deal.
12422. Mr. Stenhouse. Q I am putting it now about the floor of the 4th Right. From what you know of the way the floor used to surge up in Kamlin, is it not a correct assumption?
12423. Mr. Stenhouse. Q I object to that statement. There is no evidence at all that the floor surges up in Kamlin.
12424. Mr. Stenhouse. Q Is it correct to say that, in the 4th Right, with those shocks there, and the roof pressing heavily on them, the floor would rise up to meet the falling roof? A. I do not think that floor would rise.
12425. Q Why? A Because it was a strong floor. It was not a bottom that would break. Some bottoms break, and some do not break.
12426. Q Do not you know that, during the last week the pillars were being taken out in the 4th Right district, one had to be sent in to keep the roof up, right where they were taking down the pillars? A. You always have to support the roads where you are taking out pillars.
12427. Q Do not you know that, that, right in the vicinity where the pillars were being extracted, special men were sent in to keep up the roof, because it had started to break down, do not you know that, regarding this particular 4th Right, a week or two days before the disaster, the mine was in, specially timbering up, to enable you to get out as much as you could? A. No more than we put in.
12428. Q But you know that, two days before the disaster, that was so? A. No, I do not know it, only the ordinary repairs would be going on.
12429. Q Do not you know that Crowder, the steam-man, had to go in and put in special timber to keep the roof up, just inside the side of where the pillars were being extracted? A. Crowder was not a man who supported the roof, his duties were to lift mine and lay them.
12430. Q Do you mean to say he did not do that? A. I do not know.
12431. Q Do you mean to say that other men were not put in to do that? A. No, I do not know that anything was done out of the ordinary way.
12432. Q It is not a fact that, in taking out the pillars in the 4th Right, directly they were extracted the roof used to fall? A. When we took the timber out.
12433. Q The whole of your supposition to take out the pillars in the 4th Right was this, directly you extracted the timber, down came the roof? A. No, not directly.
12434. Q Well, within what period? A. In your opinion, it does not always take the same time.
12435. Q Almost how long, in the 4th Right, when you start to take out the pillars in the 4th Right, is it not a fact that, when you have the timber down, very shortly afterwards down would come the roof? A. It depends on the nature of the roof.
12436. Q I am speaking of the 4th Right, did not it happen? A. The roof in the 4th Right was not all the same from end to the other, there were different parts of the roof stronger than others.
12437. Q But was not that the general rule that, as soon as the timber was extracted, down came the roof? A. No.

- 125540 Q Do you mean to say that the 4th Right was a roof that used to hang up for over 6 feet? A Some parts of it.
- 125541 Q Then say that? A Yes.
- 125542 Q For how long? A I could not say for how long.
- 125543 Q How many days? A I could not answer that question.
- 125544 Q Were those blocks stuffed with solid coal on the inside, or solid stone? A Little, small stuff between.
- 125545 Q They were put up very tightly? A Fairly, not very, tightly.
- 125546 Q How long, in your opinion, did it take the roof, where those last pillars had been taken out, to fall, when it did come—the big fall that you speak of, what was the distance of time that it took to come down? A It would be about a good few days, perhaps. [Interposed.]
- 125547 Q Well, about how many? A About 5 or 10 days.
- 125548 Q I mean from the time the roof started to fall, from a hole the last pillars were taken out from the 4th Right, from the starting time to when the fall was practically completed, how long did that take? A I could not say when the fall was practically completed exactly.
- 125549 Q Do you think that there was a fall in the 4th Right of one large block of stone? A I believe there was a big fall in the 4th Right.
- 125550 Q Do you believe that there was a fall of one large solid block of stone? I could not say one solid block of stone, but there was a big fall.
- 125551 Q But you do not answer the question.
- 125552 Mr. Bruce: Mr. Rogers has said all he can.
- 125553 Mr. Zupnik: Q You could not see a large solid block of stone? A No.
- 125554 Q Could you see several smaller blocks of stone? A I could not say that.
- 125555 Q Could you tell me what was the largest flag of stone you saw in the 4th Right, roughly speaking? A No, I could not.
- 125556 Q Did you see any estimate you like? A I could not give you any estimate.
- 125557 Q Was it when you saw, from what you did see, that the roof did not come down on one solid block of stone 44 yards square? A I do not believe that it would come in one solid block of stone 44 yards square—it is one solid block.
- 125558 Q You do not believe that? A No.
- 125559 Q And you made no careful or imaginative as you possibly could after that disaster? A Yes.
- 125560 Q Now what, in your opinion, as far as you could see from all your experience, was the large area of the largest block you saw that had fallen? A I could not answer that. I could not say what was the largest stone.
- 125561 Q The conclusion, you draw from everything you did see was, you say, that it could not have been anything like a solid block of 44 yards square. Now as, as nearly as you can, the size of the largest stone that you would say did fall in one block, from everything you saw, give me your opinion from your observation? A In my opinion it would be about 5 or 6 feet in length, and about a foot thick.
- 125562 Q I think it was clear to you that, as far as the thickness of any particular piece of stone was concerned, there was no piece of a greater thickness than about a foot? A Oh, I could not say that.
- 125563 Q As far as you observed? A As far as I could see.
- 125564 Q There was no piece of a greater thickness than about a foot? A As far as I could see.
- 125565 Q Now, I think that stones had fallen in it—sort of cracks all over it? A Yes, but not all over.
- 125566 Q Well, at intervals of 4 or 5 yards, roughly speaking? A Oh, yes.
- 125567 Q And would it not follow from that, that when the roof would fall, it would have caused a hole in which there was no stone? A Yes.
- 125568 Q From what you observed in the 4th Right, could you tell me about how far apart these features were, where those last pillars were being extracted? A No, I could not.
- 125569 Q Have you any idea? A No, they are sometimes farther.
- 125570 Q How can we see, because I never saw it, would they be within 2 or 3 yards of one another? A Yes, and more.
- 125571 Q Four or 5 yards then? A Yes.
- 125572 Q Well now, having told us that, in your opinion, there was no big fall in one solid block of 44 yards square, I want you to tell me now what is your theory, if you have one, as to the cause of the disaster? I do not care if you have not got any. I will not bother you, but, if you have a theory, will you tell me what it is? A My only theory is that a big fall happened there, and caused a big hole of air to come out from there. That is all the theory that I have.
- 125573 Q And is that all the theory that you have always held, or how that theory was changed since the incident? A No. I drew the men's attention, as I told you yesterday, when passing the 4th Right. I could see the same sight that there was something up there that we had not seen before.
- 125574 Q I do not think you quite appreciate my question. I had better read to you what you said at the inquest as given in Mr. Bruce Smith's examination—
I cannot picture up, other than for the explosion except you said that, or you, or said that. I knew that you would never look in explosion, so that does not.
- 125575 Mr. Wade: Now, will you read that on page 15 also, where he speaks about the wind blast?—
I have thought a good deal about it, but I cannot make up my mind about what caused it. I have nothing at all; the only thing I have thought about is what we have found a good deal about in the last fortnight—that is, that we were all under it as in the 4th Right, or under a hole, and then say in saying you're down. I cannot say what the blast was, I have no idea. It appears to me that the blast has come from the 4th Right pillars. The roof sagged that it was a blast of gas or air or of dynamite. I do not know what it was.
- That is what he speaks of.
- 125576 Mr. Zupnik: Q Now, Mr. Rogers, that was what you told to me, then afterwards Mr. Bruce Smith examined you, and you said that you could not determine any other cause for the explosion except gas and coal dust, or gas or coal dust. Now, what I want to ask you is this: do you tell the Commission exactly that, in your opinion, and then played on part in that explanation? A No, I do not mean to say that.
- 125577 Q Do you mean to tell the Commission that, in your opinion, the damp played no part in the disaster? A I do not know where the fire-damp would be found.

FRANK—W. Rogers, 31 March, 1904.

- 25319 Q Do you mean to tell the Commission that, in your opinion, it did not play a part in the disaster? A I do not think it did.
- 25320 Q What did you mean by telling Mr. Bruce Smith that you could not mention any other cause for the explosion except gas and coal dust, or gas or coal dust? A Did I tell it "the explosion"? [Interposed.]
- 25321 A Yes. We called it the explosion.
- 25322 Q Yes. You said? A No, he did not. That is the way the question was put.
- 25323 Q Yes. You said? A I do not care whether you call it a disaster, or the explosion, or anything else. I want to know—[Interposed.]
- 25324 Q In connection with that, I think it would be fair to say that, on that date, you knew, the question and answer were answered by the gentleman who took them, and I think it is quite probable that, after Mr. Rogers gave the evidence as to the fact I may have said to him, "Do you know of any other cause which might produce an explosion?"—and he probably said, "Gas or coal dust would do it," because he gave us to say, "I know that gas would cause an explosion, or that dust would," and it is quite possible that the only inference is if he had said that gas or coal dust would play a part in the explosion, but I do not remember being left with the impression that Mr. Rogers had indirectly contradicted himself by saying, on one place, that gas and coal dust would cause the explosion, and, on another place, that he thought it was caused by a coal dust, and I think I should have remembered it if he had.
- 25325 Q The honor? A If the word "or" was substituted for the word "the," it would be a different thing altogether.
- 25326 Q Mr. Smith? A Then, you do now tell the Commission that, in your opinion, the dust played no part in that disaster? A I do not think it did.
- 25327 Q You do think a coal dust played a part? A Coal dust might play a part.
- 25328 Q Do you think it did? A Well, I think it had something to do with it.
- 25329 Q Tell me what that something was? A Coal dust.
- 25330 Q Yes, but what had it to do with it? —
- 25331 Q The honor? A How did coal dust work in the disaster? A It might get heated by the compression of air.
- 25332 A Yes. [Interposed.] Q Just understood now, I am asking you what part coal dust played in the disaster, and how, because you say you think it did play a part,—now, what part did it play, and how did it play a part? A I could not answer that.
- 25333 Q Did not you go on to say it was heated by the compression of air? A I said it might.
- 25334 Q Who told you that? A Nobody. I know that compressed air gets hot. I know that, because we have got an air compressor at the mine.
- 25335 Q Is that your only knowledge that air gets hot from compression? A Yes.
- 25336 Q And you think that the coal dust was made so hot by the compression of the air that it ignited? A I would not say that it ignited.
- 25337 Q You will not say even that it ignited? A No, I would not say that.
- 25338 Q You think it is that it was made hot? A Yes, that is my belief.
- 25339 Q When I told it that I may go further and say that, in your opinion, you consider that there was no flame in the disaster? A I see no trace of it.
- 25340 Q You were not any more heated? A I saw men with their hair singed a little, but not what you might call burnt.
- 25341 Q You never saw any more heated? A There were one or two outside, rather burnt or singed.
- 25342 Q And you saw no indications of flame anywhere throughout the mine? A No, I could not say that I did.
- 25343 Q And the theory that it was an explosion of gas and coal dust would be, in your opinion, altogether outside the—[Interposed.] A I would not think it was gas.
- 25344 Q So that you, in effect, agree with what Dr. Robertson has said? A Something—[Interposed.]
- 25345 Q You know what he said, you agreed that, did you not [referring to the note headed in margin Dr. Robertson's analysis]? Have you got a copy of this inspection made by Dr. Robertson, Mr. Holmes, Mr. Rogers, Mr. Day, Mr. Williamson, and Morrison? A I have no notes belonging to myself or anybody else.
- 25346 Q Did you get a type written copy of any notes from Dr. Robertson? A No, I do not believe I did.
- 25347 Q Do not you know? A No, I do not believe I did.
- 25348 Q Mr. Wells? Where his name, and give him a chance of saying whether he saw them.
- 25349 Q Yes. [Interposed.] Q Then look at these notes, and tell me if you have ever seen them before? [The notes of the trial of Holmes, Rogers, Day, Williamson, Morrison, and Dr. Robertson in Mount Kemble show on first September, 1902, were shown to the witness.] A Yes. I believe I have seen them.
- 25350 Q Now, where did you see them? A I think I saw them in Knoxville, and in Sydney, also, I think.
- 25351 Q A type written copy like that? A Yes, I believe it was something similar.
- 25352 Q And were not you supplied with a copy? A I believe I was.
- 25353 Q And it was upon this copy that you were supplied with that you heard your evidence just now, given before the Commission? A No, I would not say that. I would not do it.
- 25354 Q I suppose you have had a number of conversations with Dr. Robertson about this disaster, and the cause? A Yes.
- 25355 Q You have had a large number of conversations with Dr. Robertson about the theory as to the cause of the disaster? A Yes, we have been talking a little about it.
- 25356 Q And you have adopted his theory? A No.
- 25357 Q Do you mean to tell me that it is your original theory, and that you yourself thought that the coal dust was heated by compression of air?—do you tell me that you thought that? A Yes, I do.
- 25358 Q You say you do not, but Dr. Robertson has explained it. Do you mean to tell the Commission that you, without any suggestion from any person, came to the conclusion that the coal dust was heated by compression of air to the Kemble Mine? A I said it was heated by something—I did not say what it was—but I believed the air was heated, but I could not say that the coal dust was heated from the compression of the air.
- 25359 Q But did not you just say that you thought that the coal dust was heated by the compression of the air? Do you say that, in your opinion, the coal dust was heated by compression of air? A Yes, I do.

22042 Q Now then, I want to know do you mean that you came to that conclusion, that the coal dust was heated by the explosion of air on your own notion, without the suggestion of any person? A It was not suggested.

22043 Q Well, what was it? A Well, we had been talking about it—different people.

22044 Q Did it ever occur to you to say such a thing until it was talked about by some other person? A Yes.

22045 Q When? A Just at the time.

22046 Q Then, why did not you say that at the inquest? When you were present about the causes of the disaster, and when you were talking about the coal dust, why did not you then tell us that you thought the coal dust was heated by the compression of air? A I suppose it was because I had not thought to much about it then as I have done since.

22047 Q Had not you had three or four weeks to think about it? A No, not to think about that—I had no many other things to think about.

22048 Q Now, did not you say that, "I have no idea of the way of the disaster, I have no theory, I have no suggestion to make, I have not thought so to what has been the cause, I have no reason for not thinking about it, I have thought a good deal about it, but I cannot make up my mind about what caused it, I have no theory at all, the only thing I have thought about it is what we have heard a good deal about in the last fortnight, that is, that an area of waste fell on to the 4th Right pillar, causing a blast, and blowing everything apart; that is, that an area of waste fell on to the 4th Right pillar, causing a blast, and blowing everything apart down, I cannot say what the blast was, I have no idea, I suppose it is that the blast has come from the 4th Right pillar, I do not suggest that it was a blast of gas or of dynamite, I do not know what it was, I do not know how the men I have mentioned (Stuffed and Powell) were burnt, my idea is, that when the blast came out, it blew different ways, some before and some sideways; I could not say whether it was spread or not, I have no idea whether the blast was very loud, I have no impression about it, I do not know that there was any after-damp in the pit after the disaster." Now, why did not you say then, when you were being pressed so closely regarding this blast, that you thought that compressed air had heated the coal dust? A As I told you before, I had not so much time to think about it before as I have had since.

22049 Q Now, is it not a fact that you have only learned this story about the heating of the coal dust by the compressed air from what was told to you by Dr. Robertson? A No, it was from what I heard, and what I thought myself.

22050 Q From whom did you hear it? A From different people.

22051 Q From Dr. Robertson amongst the number? A Yes.

22052 Q And you are not prepared to give any reasons to support that suggestion, that the coal dust was heated by compression of air? A No.

22053 Q Can you account for the carbonaceous poisoning in the mine? A No; only through coal-dust being heated.

22054 Q Without any flame? A Without any flame.

22055 Q Do you know what would cause the carbonaceous? A The heated coal.

22056 Q I suppose you would call it after-damp. I do not want you to misunderstand the term. I am going to put in your evidence that a technical term,—do you know what it means by carbonaceous? A It is a very dangerous thing, a poisonous damp.

22057 Q It is a gas that follows on what? A On heated coal.

22058 Q That is all you know about it? A That much I know. I am an chemist, you know.

22059 Q Speaking generally, you would call it after-damp, would you not? A Yes.

22060 Q I want you to tell me where did that after-damp come from? A I believe it came from heat and distillation of coal.

22061 Q From what? A Heated coal.

22062 Q Without any flame? A It might happen without any flame.

22063 Q And without any contact with? A Yes.

22064 A Yes. Well. Tell him what you mean by combustion.

22065 A I suppose. Q Do not you know what combustion is? A I do not quite understand it.

22066 Q What is your idea of combustion? A I could not exactly tell you. I have no idea about it.

22067 Q When you witness me, I want the Commission to see what your knowledge is,—do you tell me you do not know what combustion is? A I might know, if you give it to me in another way.

22068 A Yes. Well. He is a Workman, you it is another man.

22069 A I might. You speak of combustion frequently.

22070 A Yes. Well. He could probably not see a number of words in Welsh of which you would not know the meaning.

22071 A I might. You speak of combustion frequently. A Yes. Well. He could probably not see a number of words in Welsh of which you would not know the meaning.

22072 A I might. You speak of combustion frequently. A Yes. Well. He could probably not see a number of words in Welsh of which you would not know the meaning.

22073 Q How? A They might be burnt or melted by steam.

22074 Q Do not you know that the doctors have stated that they were burnt by flame? A No, I do not.

22075 Q Can you account for the signs of flame in Free a Pitt, the hole blown down, and things like that?

A Yes, I can account for it.

22076 Q How? A In Powell's Flat the blast had to come into a narrow space.

22077 Q Powell's Flat is above the table were overturned? A Yes, and that is a narrow place.

22078 Q Tell me where that blast that was directed the table in Powell's Flat came from? A It had lots of roads to come into that very narrow place.

22079 Q And, in your opinion, did it keep up its intensity all the time? A Not so great.

22080 Q However, it is the coal dust that came from the fall in the 4th Right pillar? A Yes, it came through several roads into the narrow place.

22081 Q That is your idea? A That is my idea.

22082 Q And did it gain any assistance from any explosion of coal dust, in your opinion? A No, I do not think it did.

22083 Q And it got its assistance from any explosion of fire damp? A No, I do not think it did.

22084 Q Can you tell me how it was that the 4th floor came to be burnt? A I do not think they were burnt, they were singed a little.

Witness—W. Rogers, 10 March, 1935.

25041. Q One you tell me how it was they were asleep, they were not in the line of the accident, they were up in their working line?

25042. Mr. Wade? And how were they, do not you say that?

25043. Witness? They were not working anywhere near Power Plant.

25044. Mr. Egan? Q But they were not working in the line of that accident? A They were not very far from it.

25045. Q Do you mean to say that the accident went up there and landed them? A It might.

25046. Q Is that what you say, that the accident went up in their place and landed and crashed them?

A Yes.

25047. Q I suppose you are in the position that you cannot give the Commission any more information than you gave in the Inquest? A No.

25048. Q Nothing has come to your knowledge since the Inquest which would give you any theory for the cause of the disaster? A No more than I have told.

25049. Q You have not said anything new? A I do not believe I have.

25050. Q And therefore you have no theory as to the cause of the disaster? A Only what I have said about the gas that went from the 4th flight.

25051. Q Now, speaking of gas, do you deny that that man Quire did light gas in your presence? A Yes, I do.

25052. Q Do you deny that he was unlicensed gas to you? A Yes, I do. I do not remember anything at all about it, either in coming or lighting gas.

25053. Q Do you deny David Ross, then he told you of fire-damp in the mine? A I do not remember David saying anything to me.

25054. Q That you will not swear he did not? A I do not remember that he ever did.

25055. Q That you will not swear that he did not? A Yes, I will swear that he did not.

25056. Q Now, is it not a fact that, about a month before Lewis left, he took a safety lamp down into Power's Flat, and was examining there for nearly a month for gas? A Rogers that again.

25057. Q He has you know that, about a month before Lewis left, he took a safety lamp down into Power's Flat, and was examining in that vicinity for gas for nearly a month? A David Ross?

25058. Q Lewis? A I thought you said David Ross.

25059. Q No, Lewis? A I do not know that Lewis did such a thing.

25060. Q Do not you know that he took a safety lamp and examined for gas? A Yes, he would be going with the deputy, and the deputy would have a safety lamp.

25061. Q Did you know that, for some reason, Lewis took a safety lamp, and he went then examined for gas in Power's Flat? A I know he did it occasionally, but I do not know whether he ever did for anything special.

25062. Q Do you know whether he ever heard anything? A No. If he did, he never told me that he did, and he never reported it.

25063. Q And you were before the Commission and say that, as far as you know, you had never been discovered in Kneble mine before the disaster, with the exception of the Gallagher case? A Yes; that would be more or less two years ago, and about two years before that I saw a little in the 11th level.

25064. Q Now, since the Gallagher case—(interrupted.) A No, before that.

25065. Q But, since the Gallagher case, you told the Commission you never knew of fire-damp being given off in any quantity in Kneble mine? A No, I do not.

25066. Q You know that Mr. Hay was going up for an examination? A Yes.

25067. Q That was the first time, I think, that he went up for the examination. He went up twice, you know that? A Yes.

25068. Q He failed once? A Yes, the first time.

25069. Q And passed the second time? A Yes.

25070. Q As far as I remember, the time that he went up for the first examination was the time that he was anxious to try and see gas, so that he could say that he seen it? A No, not the first time—the second time.

25071. Q It was not the first time that he went looking for gas? A No, it was before the second time.

25072. Q Then, as far as you know, he never went looking for gas before he went up the first time for examination? A Oh, yes.

25073. Q Now, have not I asked you that? A Repetition that again, please!

25074. Mr. Egan? Perhaps it would be better for Mr. Rogers to explain what he means, to save time.

25075. Witness? Before he went up the last time for his examination, he asked me if he could go along with Nelson when the furnace was off, when they were repairing the furnace, to go through the mine, to see if he could find gas in the mine. That is the last time that I know of his going through the mine looking for gas.

25076. Q Now, do you know that, before he went up the first time, he ever went to look for gas? A I could not say he ever went to look for gas specially, but he might have gone when doing other things.

25077. Q But you do know that it was the last time, when he went to look for gas? A It was the last time when he told me.

25078. Q Now, you told Mr. Wade yesterday that Hay had mentioned to you the No. 1 Right—(interrupted.)

25079. Mr. Wade? Along with other places.

25080. Mr. Egan? Q Now, you know that, in the report made by Mr. Nelson, there is no mention whatever made of having gone in the back workings? A I believe there is—(interrupted.)

25081. Q Do you mean to tell me that, in Nelson's report, there is a mention of his having gone into the back workings?

25082. Mr. Egan? Do you mean on that day?

25083. Mr. Egan? Yes, I am speaking of the inspections which Hay is supposed to have made with Nelson.

25084. Q That is what you are referring to? A That is what I am referring to now.

25085. Q When was that? A That was about the 15th of June.

26004. Q Now, I do not want to catch you at all. Before I show you this book I want you to think upon it, when was it that Ray went with Nelson to make the inspection for gas, or to look for gas—now, you think surely? A I think it was in June, it was on a Saturday in June.
26007. Mr. Robinson. Q Was it on a pay Saturday? A Yes.
26008. Q Cannot you do the date—pay Saturday would be every fortnight? A Yes.
26009. Mr. Lyngby. The 15th of June was a Thursday.
26010. Mr. Wade. I think you will find that the date is the 15th of July.
26011. Mr. Lyngby. I am perfectly sure of that, but the witness is not.
26012. Watson. It was on the pay Saturday that he went, they were repairing the furnace.
26013. Mr. Lyngby. I tell you that I entirely disagree that he was there at all.
26014. Watson. You are wrong.
26015. Mr. Lyngby. Q I want you to tell me when it was he was there? A. It was on the pay Saturday in June.
26016. Q How do you know it was June he was there? A. No, excuse me, I am wrong, it was on the 15th of July.
26017. Q How do you know it was on the 15th of July? A. It was on the pay Saturday.
26018. Q How do you know it was on the 15th? A. I know it was on the 15th before the accident. I believe it was on the 15th of July, and that that was a pay Saturday.
26019. Q Can you tell me how you know that? A. By memory.
26020. Q Tell me when he told you that he had been there on the 15th of July? A. On the Monday morning. He would not go through the week if he could go, and then, on the Monday morning, he told me where they had been.
26021. Q And when he told you that he had been in No. 1 Right? A. He mentioned a lot of places.
26022. Q Did he say one single word about having been up the back leading? Here, have a look at this report, if you like. *[Amplified.]*
26023. Mr. Wade. The report has nothing to do with it. The question put to the witness was "Did he say one single word about having been up the back leading?" He is about to answer it, and there this book is put in his face, and he is told "Now, look here and see if it is here."
26024. Mr. Lyngby. I propose to show him the book, and let him see the whole report, so that he cannot say he did not get fair treatment.
26025. Mr. Wade. Of course there is a grant—I do not know what to call it—about this book, but he has got hold of the wrong book.
26026. Mr. Lyngby. If Mr. Wade says that I have got hold of the wrong book with the report concerning the inspection of the 15th July, I ask the Commission now to order him to produce the right book.
26027. Mr. Moore. That is one of the books that were produced. I thought all the books had been produced.
26028. Mr. Wade. That book has been in evidence here since the 19th.
26029. Mr. Lyngby. I ask is there any other book containing a report of the inspection of the 15th of July?
26030. Mr. Moore. It is in Court, it must be produced.
26031. Mr. Wade. It is in Court, I have not got it.
26032. Mr. Lyngby. I ask specifically if there is any book showing a report for the 15th of July other than the book now in Mr. Rogers' hands?
26033. Mr. Moore. If there is any other book, it ought to be produced.
26034. Mr. Lyngby. I ask, your Honor, then Mr. Wade say whether such a book does exist.
26035. Mr. Moore. Is there any other book Mr. Wade?
26036. Mr. Wade. I have no other book.
26037. Mr. Moore. But does the book exist?
26038. Mr. Wade. I cannot tell you that.
26039. Mr. Moore. But you say it is in the wrong book, and, if it is in the wrong book, the right book should be produced.
26040. Mr. Wade. I based what I said on that, that Mr. Ray has said distinctly that he saw some reference to his name in a book at the time of the disaster.
26041. Mr. Lyngby. Q Is that the signature of Mr. Nelson—referring to the signature in the leading Court? A. That is his writing.
26042. Mr. Lyngby. If you look on the cover you will see "Under-manager's Report Book." That report is the 15th July, 1933. Mr. Wade distinctly said to me "You have got hold of the wrong book." Now, I want to know where is the right book?
26043. Mr. Moore. Q Mr. Rogers, do you know of any other book in which the statement would have been made? A. There would be the deputies' book, or what we call the furnace's book. That is the under-ground manager's book.
26044. Mr. Robinson. Q Does the under-manager make his report in the deputies' book? A. He might make some notes in it.
26045. Q How you get any books known as the deputies' books which have had reports placed in them by the under manager? A. I know that there were, but I do not know if I could produce them or not, because there were so many books destroyed in the time of the disaster.
26046. Q Was it the custom for the under manager to make his report on his own book? A. He might have a note in the other report book.
26047. Mr. Lyngby. Q The book in which Mr. Nelson would report after his inspection with Ray would be the under manager's report book, and not the deputies' book at all? A. Supposing the under manager made the examination that morning, he would make the report in the deputies' book.
26048. Q That means to say if he made the examination instead of the deputy? A. He might.
26049. Mr. Robinson. Q Is it the custom, or was it the custom, for the under manager to make two separate reports of an inspection in two separate books? A. Yes, he would. Supposing, on a day like that, on a Saturday, perhaps, there would be nobody in the mine except these two—well, he would make the examination, and he would report in the deputies' book, along with his own.
26050. Mr. Robinson. That is to say, he was acting in the dual capacity of under-manager and deputy? A. And he would sign as a deputy.

Witness—W. Rogers: 11 March, 1902.

20001 Mr. Eakin: Under these circumstances, would you expect two reports from the same man? A. Yes, he would make the deposit of report and his own report.

20002 Q But would the two reports cover the same ground, would you find, or expect to find, the same matter, or the same words, or the same as in the other, covering the same capacities? A. No; I would not find the same words. I would not expect to find it would find the very same in the both books.

20003 Mr. Eakin: Q Yes, but would you expect to find the substance the same? A. I do not know whether I could expect.

20004 Mr. Robinson: Q Mr. Hay, on that day, did not go in an official capacity? A. No.

20005 Q Would there be any occasion for Mr. Nelson to mention that he was accompanied by Mr. Hay? A. Very often they do. Mr. Hay is almost sure—well, he is sure—that his name was mentioned in the report book.

20006 Q That is not an answer to my question. Would there be any occasion, Mr. Hay having gone in an official capacity, for Mr. Nelson to refer to Mr. Hay? A. No, there would be no occasion. He might do it, or he might not.

20007 Mr. Eakin: He mentioned that Mr. Arlison read it out.

20008 Mr. Robinson: He mentioned my name, but I do not remember that at

20009 Mr. Eakin: I am advised by Mr. Garber that the Commission have never had those depositions' books that were produced at the inquest. I now ask for the depositions' report book of the 19th of July, 1901, so as to see whether there is any entry in it by William Nelson.

20010 Mr. Eakin: What was done with that book?

20011 Mr. Wade: Every book that was in evidence at the inquest was kept in the Court-house at Wallingford until the Commission opened, with the exception of the depositions book and the colliery plan.

Permission was given for books there to be taken back to the colliery. My recollection is that, when I left—the Court will remember that I was away from Wallingford the last day—before I left, I left was on a Tuesday, I handed in to whoever was at the desk every book that was put in at the inquest. Something has gone wrong with those books. The Court will remember that some days ago some books were asked for at Northampton, and it was found that they were not in, and a message was sent to Wallingford, and the books were found at the Court-house. If the depositions' reports were not among them, they must have been left there at Wallingford.

20012 Mr. Robinson of the Commission, the Secretary telegraphed to the Police Magistrate at Wallingford regarding these books. Later on, a reply was received forwarding a number of printed books belonging to Mr. Wade, but the depositions' report books referred to were not among them.

20013 Mr. Wade: Q Did these books go back to the mine? A. I do not think they did.

20014 Several bundles of depositions' reports, taken from the depositions' report books, were handed to Mr. Eakin, who looked through them.

20015 Mr. Eakin: There is an report here for the 19th of July, Your Honor.

20016 Q Now, about the capacities by Hay on the 19th of July, you have read Nelson's report of the 19th of July? A. Yes.

20017 Q You are there in no mention as that of his having been an author of the book headings? A. He has been in the No. 1 book heading.

20018 Q He has been in the No. 1 district, show me where there is any mention of his having been in either of the book headings? A. There is only one book heading.

20019 Q Where on where there is any mention of his having been in either of the headings? A. He may have been up in the heading.

20020 Q You read what is there, and show me it. A. Yes, I have read it.

20021 Q Then what is it? A. He mentions No. 1 Right, and in No. 1 Right right up to the face.

20022 Q Perhaps I had better read it—"Entered mine at 8:35 a.m. and visited the Right front and back headings, thence to the Right rope road, and in a few working places in the Right or No. 1 Right, and found some fire from the middle gase, and in good order, thence to where dam was put in to keep back water from shaft and No. 1 workings, and to ventilating furnace, which was being repaired, and arranged with Government to light on the 20th, and came outside at 11:30 p.m. and left mine at mine."—W. Nelson.

Now, do not you see that there is no mention there of their having been up No. 1 back heading? Well, Hay told me at the time on the Sunday morning after he had made the examination.—(Interrupted).

20023 Q You have already told us that what Hay told to you was that he had been in No. 1 Right, you did not say anything about No. 1 headings? A. Up to the face.

20024 Q You did not say that was in the No. 1 Right? A. I meant up to the No. 1 heading.

20025 Q I put it in your paper. When Mr. Wade asked you what Hay had said, you said that he told you that he had been in No. 1 Right, but you did not say a word about his having been up to the face? A. I meant up to the face.

20026 Q Now, Hay has told us what he told you, do you ever find Hay told you that he had been to the face of the back heading? A. Mr. Hay told me that he had been up at the face of the No. 1 heading.

20027 Q Do you ever find that Mr. Hay told you that he had been to the face of the back heading? A. He told me he had been at the face of the No. 1 heading.

20028 Q I want to tell you that Hay has told us already what he told you.—(Interrupted).

20029 Mr. Wade: I object to that, it is a clear instruction to the witness to mislead the witness and intimidate him.

20030 Mr. Nelson: I do not think Mr. Eakin goes in to test mislead the witness.

20031 Mr. Eakin: Do you ever find Hay told you that he had been with Nelson up to the face of the back heading? A. I remember that Mr. Hay told me that he had been up to the face of the No. 1 heading.

20032 Q I ask you—did Mr. Hay tell you that he had been up to the face of the No. 1 headings, front and back? A. He never mentioned front or back, he said, "the headings," the No. 1 headings.

20033 Mr. Nelson: Q But was that referring to the No. 1 headings or the headings in the No. 1 district? A. That would be referring to the two headings, the front and back, although he would not say "front and back," he would understand by that that I would know what he meant by "up to the face of the No. 1 headings."

24164. Mr. Robinson. *Q* Are there any other landings in this district? *A* Well, to the right and left there would be.

24165. *Q* Where? *A* There is the Red Right, as mentioned in the report.

24166. *Q* That is in the Red Right district? *A* Yes.

24167. *Q* But when he said that he had been in the face of the No. 1 landings, what did you understand by that? *A* That they had been up there swimming on the face in one of the ways they could find out anywhere.

24168. *Q* Did you say that there were no other landings but the two? *A* There are only those two there—Morris' and the two others.

24169. *Q* And therefore there was no reason why he should particularly? *A* No, there was no reason why he should say front or back; he would know that I would know what he meant by saying "I have been up in the face of the No. 1 landings."

24170. Mr. Loughlin. *Q* Was there any reason why he should go to the No. 1 landings? *A* That is the highest point of the mine, and he would go there to see if he could find out anything.

24171. *Q* Can you account for Mr. Wilson's not having mentioned in his report anything about the landings of the No. 1? *A* No, I do not see why he did not, I do not see why he should do it. He would not do it.

24172. *Q* You are to be understood where landings, but there is no mention of the No. 1 landings? *A* He has mentioned the No. 1 before, supposing he said he had been on the No. 1, but did not mention the No. 1, we would not have known that he had been in the No. 1.

24173. *Q* Do not you see that he says he has been in a few places on No. 1 Right, meaning that there are places in the No. 1 Right and that he had been to those places, not that he had been in No. 1 mine level at all; but that he had been in the places in the No. 1 district. Now, do you know that it is shown that Wilson was up as far as the pig wheel the day before the 15th of July? *A* I do not know that he mentioned that in that book.

24174. Mr. Wade. *Q* Two days before.

24175. Mr. Loughlin. *Q* On Thursday, the 17th of June? *A* Oh, yes.

24176. *Q* Now, it is clear that, he having been up as far as the pig wheel on Thursday, the 17th of June, there would be no need for him to go up there again on Saturday? *A* The circumstances were different afterwards.

24177. *Q* Why? *A* Because the furnace was off, the furnace was being repaired.

24178. *Q* Can you tell me why Mr. Hay should tell you he was up there? *A* He told me to was up there along with other places, he did not mention that place without mentioning other places as well. They were in the highest places in the mine.

24179. *Q* So you were to tell me that you could mention any other places that he did mention to point? *A* I could not exactly tell you the opinion, but I believe it was Stafford's and Gill's names there.

24180. *Q* So you know that there is no mention there in the Wilson report (book) of having been in Stafford's and Gill's names there? *A* I do not know that it is mentioned, but I believe he told me that he had been up there.

24181. *Q* Can you remember any other places that he told you? *A* No.

24182. *Q* Why did you tell me at the Inquest that the back and front landings of No. 1 had been examined some days before the disaster? *A* I could not remember anything.

24183. *Q* When you passed at the Inquest concerning where the back and front landings were examined, and did you then say a single word about Hay being there?

24184. Mr. Wade. *Q* No, it was about Morrison he was asked.

24185. Mr. Loughlin. *Q* I could not say that I did.

24186. Mr. Loughlin. *Q* Did you say anything about Hay having been there? *A* No, I do not know that I did, and I did not remember at the time, I did not think about it, but, as for knowing that he had been there, I knew then and I know it now.

24187. *Q* Did not you know at the Inquest that you had been asked by Mr. Atkinson in the back landing? *A* I was with him at the time.

24188. *Q* Did not you know that Morrison had stated that he had not examined up the back landing? *A* Yes.

24189. *Q* Did not you know that at Wallisburg it was being set up, and that the jury found as a fact, that the explosion originated either in the back landing or along from the back landing towards Anderson's plant? *A* I did not know that the jury —

24190. Mr. Wade. *Q* Should not know then when the jury would find.

24191. Mr. Atkinson. *Q* Mr. Loughlin, I do not think there is any use in asking him when his knowledge of the jury's verdict was, because, at the time he gave his evidence, he would not tell when the jury would say. You are asking him why he did not make mention of something at the time he was being examined. I told that was all long before the jury came in a verdict.

24192. Mr. Loughlin. *Q* Do not you know, Mr. Rogers, that you were present for information, as to when the front and back landings had been examined, and you would not tell me? *A* I know that Hay had been there, at the time of the Inquest, and if I had thought about it I would have said Hay there to give evidence, but I forgot all about it until afterwards.

24193. *Q* Now you were being pressed for a statement as to when you knew that the back landing had been examined, and you would not say. Is not that so? *A* Yes, I was pressed.

24194. *Q* Although you were pressed, it was not then occurred to you to state that Hay had been there? *A* No, it did not.

24195. *Q* Was not Mr. Hay present at the Inquest too? *A* No.

24196. *Q* So you were to tell me that he did not attend the Court several days during the Inquest? *A* No, I do not believe he did.

24197. *Q* Did not you know that he attended there on some days? *A* No, I do not believe Mr. Hay was at the Inquest at all. I do not think he was.

24198. *Q* Mr. Hay was living in the mine house at present, I think? *A* No.

24199. *Q* Not at this time? *A* No.

24200. *Q* He is a relative of yours? *A* He is named in an adopted daughter of mine.

24201. *Q* And I please to show all your clerical work? *A* Most of it.

24202. *Q* And you were in daily communication with Mr. Hay while the whole of the Inquest was on? *A* Well no, well, perhaps — [interrupted.]

Flower-*W.*, *Reyes*, at March, 1905.

20122. *Q* How will you tell me when it did occur to you to remember that Hay had been up the back heading? *A* Oh, by talking about it.
20123. *Q* When did it first occur to you? *A* Oh and I was having a talk about it, and he said to me, "Has you not remember to-and-to?" and, of course, I said "I do."
20124. *Q* Well then, Hay put it into your mind about his having been up there? *A* No.
20125. *Q* Now, you told me that Hay asked you did not you remember to-and-to? *A* By talking about then, I remembered about his asking me if I could go, and then I remembered his telling me on the Sunday morning about what they had seen and what they had not seen--on the Sunday.
20126. *Q* When was that? *A* A long time after the tragedy.
20127. *Q* Was it after the Commission started? *A* No, it was before, I believe.
20128. *Q* Now, you learn to me was not it after Johnny Morrison got on evidence before the Commission that he had been down up this back heading? *A* I do not think it was.
20129. *Q* Was not the first occasion that it occurred to you to set up that Hay had been up down back heading after Morrison had been to Burlington? *A* I came out of it. It was Hay himself that did it.
20130. *Q* And was not it after Morrison had made the admission that there had been a fire? Had not been suggested by him? *A* I would not swear it was.
20131. *Q* Will you swear it was not? *A* I would not swear whether it was when as before; I am not going to swear a thing I am not sure about.
20132. *Q* Now, just talking you so to this pipe--who, do you say, handled that pipe to you? *A* The underground miner.
20133. *Q* Who is that? *A* My Heighden.
20134. *Q* Where did he hand it to you? *A* In the office at the mine.
20135. *Q* Where? *A* I suppose a good while after the accident.
20136. *Q* Did you make any inquiry to me to whom the pipe belonged? *A* No.
20137. *Q* Did you know, in any way, it might have belonged to any Tom, Dick, or Harry? *A* So far as I know I might have taken it perhaps to--*(interrupted)*
20138. *Q* Let me ask you--*(interrupted)*
20139. *My* Frank, I think that Mr. Rogers should be allowed to continue his case.
20140. *Where* I was going to say that, I do not take it to anybody to inquire, any of the relations of the man who was working over this place. I did not make inquiry as to upon that point.
20141. *My* Joseph? *Q* You have it is supposed to have belonged to one of the Jones? *A* Yes, it might Jones or Thomas. It might be belonging to one of them. I know they worked.
20142. *Q* It was your supposition that, the pipe having been found underneath a certain heading clock, it belonged to the men who were working on that place? *A* I thought it might be belonging to them. I would not swear it belonged to them, because there were others and others going along there.
20143. *Q* Did you go and ask the miners whether they could recognize that pipe? *A* No.
20144. *Q* So that you produce that pipe to me, and, for all you know, it might never have been in the mine. It might have belong it to any person? *A* It was given to me, and I saw the place where it was picked up.
20145. *Q* Is Mr. Heighden here to give evidence of the finding of the pipe? *A* No, he showed me the place where he found it, and showed me how it was covered, and all.
20146. *My* Joseph Smith? I object to what he told you.
20147. *My* Frank? Is it not what he was told, but what he was shown.
20148. *My* Joseph Smith? Is it the same thing.
20149. *My* Frank? *Q* He took you to the place? *A* Yes.
20150. *Q* And then he showed you something? *A* Yes, he showed me the mine, and he showed me a lot of curves that was lying on the pipe.
20151. *My* Frank? That is what he told you.
20152. *My* Joseph Smith? Exactly; and to show him it is to tell him, really.
20153. *My* Frank? I object to what Mr. Rogers has come to--he saw the place.
20154. *My* Joseph? *Q* There is some dispute as to the distant part of the Mount Kautela Mine--*(interrupted)*
20155. *My* Frank? I object to that, that is not correct, there is no dispute.
20156. *My* Frank? There are different accounts, slightly varying accounts, as to the distant part of Mount Kautela.
20157. *My* Joseph? *Q* One is the three distinct places, in your opinion, in Kautela Mine, before the disaster, just not like they were? *A* I do not know that they were very dirty, I do not know that there were any three that I could imagine that were more dirty than others.
20158. *Q* Have you kept out the evidence given in the report? *A* The No. 6 Right, and, perhaps, the 6th Left would be one of them.
20159. *Q* You say the 4th Left would be one of them--where are the other two? *A* The No. 6 Right in the Black District, and the 6th Right in the No. 1 District.
20160. *Q* Is that all? *A* There are the three.
20161. *Q* Now, what is your idea of a dusty coal? That is to say, how many inches of dust on the floor would you call a dusty coal? *A* Perhaps I am I cannot think.
20162. *Q* There I may take it that the 6th Right and the 4th Left in the No. 1 District, and the No. 6 Right in the Black District, were places averaging about 1 to 2 inches of dust on the road? *A* No, I would not say that they was there.
20163. *Q* Well, I in 1 section of dust on the road? *A* It might be that in our place, and there would be nothing on the track.
20164. *Q* However, there would be some accumulation of dust, between 1 and 2 inches deep, along the road, you mentioned? *A* Well, that would be I think.
20165. *Q* And no out-crop was done along these roads, apart from the natural discharges that would come from the mine? *A* Yes, there was no out-crop there on the 4th Left.
20166. *Q* I am speaking of before the disaster? *A* Before the disaster, water was taken out of Stafford's garage head out of a small one, and Bill's garage head out of a small one, and you on to the 4th Left.
20167. *Q* Do you know this of your own knowledge? *A* Yes.

26169. Q How long before the disaster was it that this was done? A Oh, it was done—— [Interposed].
26170. Q Did not you say this at the inquest, page 17,—"I do not know the names of the men who watered the road, because they were employed by the contractor," and, higher up, "Nobody was employed actually for watering the dirt?"—— [Interposed].
26171. Mr. Wash. Q Read the next line, please! I object to this. The next line says "one of the men is named O'Donnovan."
26172. Mr. Spangle. Q Then, lower down—"The watering of the main is not left to the contractor who built the road, the men who do the watering are employed by the contractor, and paid by him, the watering is done by an agency the contractor likes to mind, the Company has control over the man O'Donnovan I have mentioned, and so discharge him; the contract includes the hauling of soil, the water-hauling, and the watering of the main as well?" Yes, did you say that? I have before the disaster that soil and dirt [Interposed about the road, and soil, and road, was discharged?]. A Yes.
26173. Q Now you are watering the main approximately, road, and culvert, and here? A Yes.
26174. Q You spray the water all over the main? A Yes.
26175. Mr. Robertson. Q You have stopped watering the road? A Yes, we have had to stop watering the road, because it was bringing the road down.
26176. Mr. Spangle. Q But you gave that as necessary to water the sides and the floor? A We do not do as much now as we did just after the disaster.
26177. Q But still you do find it necessary to do it? A Not so much.
26178. Q But you do it? A Well, in some places, yes.
26179. Q That being so—— [Interposed]. A We do not water so much as we did in the beginning.
26180. Q Do you consider that the appliances you had before the disaster were sufficient to do all the watering necessary? A Yes, we did then.
26181. Q Do you think it now? A Yes, I thought so.
26182. Q But in view of what has happened? A Yes, I think it also now.
26183. Q That there is no need now for these new appliances? A Yes.
26184. Q That is your opinion? A Yes.
26185. Q And that, in your opinion, the new appliances are appliances? A, I made them because it was suggested to me that they should be made.
26186. Q But you do not think them at all necessary? A No.
26187. Q And you do not think flexible hose requires watering? you do not think it was necessary? A I do not think it was.
26188. Q And, if you had your way, you would not water it? A I expect I will stop it quite soon; because it is naturally damp.
26189. Q Now, I want to know whether the springs were stopped round the 33-acre pond? A They were blocked through the hills falling.
26190. Q But were any stoppage kept into these springs? A There were stoppages in some of them.
26191. Q Was in the majority of them I take it the air was allowed to scale through? A Yes.
26192. Q So that I would be safe in saying that one half of the springs in that pond would not have any stoppage? A Well, perhaps, one half of them—— [Interposed].
26193. Q Do not you see that intake air passed these springs, and went on to the main? A The intake air was not going that way.
26194. Q You it was? A No, they do not have an intake airway that way.
26195. Q Do not you see that the air going up this daylight, heading was going past the various stoppage along the east and north side of the pond that had no stoppage in them? A Yes, the intake air was coming this way [cough].
26196. Q Now, in your opinion, is it good management to have an intake air passing an open pond? A
26197. Mr. Wash. Q He does not say that the pond was open.
26198. Mr. Spangle. Q Were there not openings along the hill right? A Yes, there might be one or two.
26199. Q If there were one or two, it might be passing an open pond? A Yes.
26200. Q Then, it is good management to have intake air passing an open pond? A I think so, in that case.
26201. Q And you believe, then, in having air passing a pond covered up to the main? A Yes; not through the pond, and you.
26202. Q No, not through the pond, but passing it. Now, do not you know that the pond had an accumulation of black sludge on it? A Nothing to be of any harm to anyone.
26203. Q And you know there was an accumulation there? A There was a sludge.
26204. Q But you know that after the disaster it used to put out the lights? A If you put them down on the floor, it would.
26205. Q Do you not see that the intake air passing that pond might sweep out the black sludge on to the main? A There was nothing there to do any harm.
26206. Q Then you stick to the opinion that it is good management to have intake air passing an open pond? A It just depends on what is on the pond.
26207. Mr. Robertson. Q Do you really mean that it is good management; or that it may be safe under certain circumstances? A I thought it was safe under the circumstances, that is what I mean. Seeing that we found nothing at any time to be of any danger to anybody, neither black sludge, nor any gas at all. We never saw any gas there.
26208. Q But, as a general position, you do not mean to say that it is good management—as a general thing? A
26209. Mr. Spangle. Q That is just what he did say.
26210. A. (To Mr. Robertson.) Not as a general thing, no.
26211. Mr. Spangle. Q Now, it is a fact, I think, that the intake air along the main level depended upon being kept in order by a number of single culverts there? A No, not by a number of single culverts there.
26212. Mr. Michie. Q How do you know that there was an accumulation of gas in that pond which might have been dangerous? A Because we had never seen any there, either in the hills, or the headings, or the head, or anywhere.

Witness—W. Rogers, 11 March, 1893

- 20313 Q Did you know how much of this black dump that you & I saw was contained in this gulch?
A Oh, well, we know there was not very much there. There was no black-dump to dump here to begin with.
We considered that safe.
- 20314 Q Did the accident prove to show that the gulch itself was not extended beyond the edge of the hill?
A Well, as far as possible, as far as we could get into it to examine it, it was examined.
- 20315 Q Would it not have been possible for a very large accumulation of black dump to have been on top of the hill?
A No, it would never be on the top of the hill, it would be on the very bottom, amongst the stones.
- 20316 Q Were the stone workings of that gulch higher than the airways on both sides of it?
A No.
- 20317 Q Were they lower?
A Yes, as travelling—the workings would be lower. There is a fall from the outside down towards the No. 1 (from east to west).
- 20318 Q The lower part of that gulch would be lower than the inside or return airways on both sides of the gulch?
A Yes.
- 20319 Q Then I suppose you do know that it would be quite possible under those circumstances for a very great quantity of black dump to be there, if the workings on the gulch were lower than the airways?
A The black dump would have a tendency to go out into the return.
- 20320 Q Do you know that the specific gravity of the black dump would cause it to have a tendency to lie down on the bottom of the gulch, so you have yourself said?
- 20321 A Yes—because I do not think to coal that.
- 20322 Q One you tell me what is the relative height of the gulch to the surrounding airway?
A That is the top of the hill.
- 20323 Q No, is there a fall from the cross-cut, heading towards the No. 1 return airway, a gradual fall?
A Yes, that is the way the water ran.
- 20324 Q Then the outlet for the black dump would be by the 4th Right?
- 20325 A Yes. [Q The return airway would be the lowest part?] A Yes, there is water running out of the 3rd Right or the 4th Right now.
- 20326 Q Did you ever discover any gas, any evidence and gas, on the east side of the gulch?
A No.
- 20327 Q You never saw any black dump there?
A No.
- 20328 Q Did you see any black dump on the west side of the gulch?
A No.
- 20329 Q May I take it then that the only part where you did see this black dump was at the entrance to the 4th Right?
A Yes at the entrance to the 4th Right.
- 20330 A Yes. [Q Would not the black dump be consolidated and perfectly firm, the pillars having been withdrawn and the roof falling in—would not it be consolidated?] A Yes, it would be. I reckoned that it was solid, and that nothing could move it.
- 20331 Q Can you conceive of any space at all, or any pocket?
A No, you cannot get in at all.
- 20332 Q Could you put your little finger in the corner of the gulch?
A In the corner of the gulch? No, I do not believe I could, it would be that solid with the weight and pressure of the stones. It would be so solid that you could not get anything in.
- 20333 Q Were you at the Trem Colliery in South Wales when a road was driven 500 yards through a gulch?
A Yes.
- 20334 Q Do you remember what was the condition of that when the drive was put in?
A It was tighter and harder to drive than what had been driven through the coal.
- 20335 Q Was it water-tight?
A It was water-tight.
- 20336 A Yes. [Q You say that the gulch would settle as tightly as to be water-tight, the most thing would supply in the 30-acre gulch right through it?] A Yes.
- 20337 Q So that, at the time of the extraction of the last pillar of the B-cave mine at the 4th Right, all the surrounding gulch had settled solidly and tightly?
A Yes, very solidly.
- 20338 Q Now, you know that the air going up the main level depended upon single curves down between the front and back headings?
A No.
- 20339 Q Look at the 14th Right here [pointing to the plan]—single curves down?
A No.
- 20340 Q What, double down?
A Double down.
- 20341 Q But look here!
A That may not be correct.
- 20342 Q Do you see that "C" at the 14th Right?
A Yes.
- 20343 Q Do you mean to swear that there were two curves down between the front and back heading at the 14th Right?
A Yes.
- 20344 Q You saw them there?
A Yes.
- 20345 Q How far apart?
A Not very far.
- 20346 Q How far?
A They might be 4 or 5 yards apart.
- 20347 Q And there were double down at the 14th Right?
A Yes.
- 20348 Q And this plan is not correct?
A Yes, showing only a single door. It might be right at the time of the accident.
- 20349 Q But from speaking of the time of the accident, would the basement at the time of the accident?
A No.
- 20350 Q There were two doors?
A Yes.
- 20351 Q At the 14th Right?
A Yes.
- 20352 Q Did you see the plan proposed by Mr. Wadsworth, showing the ventilation by returning the outside and return airways?
A After the disaster?
- 20353 Q Yes?
A Yes.
- 20354 Q A plan showing which the condition of the ventilation was at the time of the disaster?
A Yes, showing the way the air travelled.
- 20355 Q Now, do you see that the plan that he proposed, showing the ventilation, shows a single door at the 14th Right?
A Yes, perhaps that is the way it was after the accident.
- 20356 Q I mean at the time of the accident?
A Then that would be wrong. Perhaps that was taken from Mr. Garlick's plan [showing the plan as used by the Commissioners, a telegraphical reduction of the ordinary plan, prepared by the Mines Department].
- 20357 A Yes. [What do you mean by saying that perhaps it was in that time the accident, were not they all blown away?] A There used to be two curves down there before the accident, I will swear that.
- 20358 Q No! that was supposed to have been prepared under your supervision?
A Yes.
- 20359 A Yes. [Q Why did not you after that, you see there is only one "C" there?] A Yes.

18199. Q Why did not you put two C's there? A Well, there ought to be two cursive doors.
18200. Q And on the day of the disaster there would be two cursive doors there before the disaster? A I would not say. I saw them there before the disaster.
18201. Q How long before? A I could not say how long.
18202. Q Will you tell me what the word was for two cursive doors in a small distance like that between the two landings, what was the distance? A Between posts.
18203. Q What was the part of the two doors? A So as to make the outside to go up the No. 1 straight, and not go through the stairs.
18204. Q And would not a single door do that? A Not as well.
18205. Q So that you believe in double doors between the stairs and outside? A Not always.
18206. Q But you believe in having two cursive doors there? A Yes.
18207. Q And do you know that you are the only witness who has ever stated that there were two cursive doors there, do not you know that Morrison and the other witnesses have stated that there was only one? A At the time of the accident?
18208. Q Yes? A There need to be two there, I will swear. And Mr. Leach says there was only one?
18209. My Friend. He was not asked.
18210. My Friend. Q Now, do you say there were two cursive doors on the 5th Right side road?
18211. A Yes.
18212. Q And two cursive doors on the 5th Right travelling road? A Yes, and there are five lower doors.
18213. Q And do you say there were double doors along the 5th Right between the two landings? A One door there.
18214. Q So that, all the time that the door would be open with steps passing through, the revolution would be damaged? A No, it would not.
18215. Q Why would it not? A The return would go into the No. 1.
18216. Q If the door between the two landings on the 5th Right were open, would the return air go down the No. 1 main level in the north, or would it go down the No. 1 main heading and go in the men? A It is my belief, it would not do anything at all. It was that way balanced that the door was not required, as far as that goes.
18217. A I am asking you, if this door between the landings on the 5th Right were left open, would the return air go in the men level, or would the return air go down the return? A No, it would not, it was that way balanced.
18218. Q You say it was so nicely balanced it would not go either way? A No.
18219. Q Now, you say that there is a single cursive door outside of the catch-rod near Brown's place? A Yes.
18220. Q That is to drive the air right up the back heading? A Yes.
18221. Q So that, if that single door became damaged, the air would not go up along the back heading at all, but would short-cut along towards Brown's place? A No, I would not swear there were double doors there.
18222. My Friend. Q Was there a door at all? Was it a cursive-door or a fixed one? A A hanging one.
18223. My Friend. Q Not a fixture? A Not a fixture.
18224. My Friend. Q A flying screen? A A flying screen.
18225. My Friend. Q But since the disaster I think you have had double doors put along all the main intake? A No, not all of them.
18226. Q You put some special rule made to cover double doors near the disaster? Yes, I am busy getting them in.
18227. Q You are busy now? A Yes, I have not got a door where you pointed out last. I have got cursive doors still, on the intake there. [Edgar up to bottom of page.]
18228. Q Now, I want to ask you a question about the appointment of that deputy, Bigger, do you know that Bigger has admitted that, until he was appointed deputy, he had had no experience whatever of gas? A He had never seen any.
18229. Q You know that? A He told me so.
18230. Q You know it as the time you appointed him? A Yes.
18231. Q And you also know that he had never used a safety-lamp? A No, I did not know that he had never used a safety-lamp.
18232. Q But you admit, now, appointing as a deputy, whose duty it would be, of course, to look for gas, a man who had never seen gas? A I asked him a question before I appointed him.
18233. Q You admit that you did appoint such a man? A I did, after asking him questions.
18234. Q Now, do not you know that all Bigger's experience was gained in Kentucky, where you say gas has never been found? A I believe he has been in Indiana.
18235. Q Do not you know that Bigger admitted to me that, outside Kentucky mine, he has not had any experience at all? A I do not know.
18236. Q How and he has been working at Kentucky, for twelve or fourteen years? A Yes.
18237. Q And you set up that Kentucky is a coal-gassy mine? A Yes.
18238. Q Now, if he has been working for twelve or fourteen years at Kentucky—he is a young man, comparatively speaking, yet—where did he get his experience of gas? A He might have got it somewhere else.
18239. Q You cannot tell me where he did get it? A No.
18240. Q So far as you know, Bigger had no experience of gas? A Only by reading.
18241. A As far as you know, Bigger, when you appointed him, had no actual experience of gas? A No, except by reading.
18242. Q I think you also approved of the shot being opened to the above? A Yes.
18243. Q You approved of that practice? A If it is safe to fire a shot—[interrupted]
18244. Q I am not arguing—[interrupted]
18245. My Friend. I would ask you, How's the riding on that point, the witness is going to give an answer to the question, and he should be allowed to finish it.
18246. My Friend. He ought to be allowed to express his opinion.

Witness—H. Rogers, 31 March, 1978.

24307. *Witness* [I say that, if a place was safe to fire a shot, if he examined the place, and if he thought it was safe to fire a shot, then it was safe to open the lamp there.]
24308. *Mr. Lyngbaek* [Q That is not what I asked you. I ask you now—the man appears of the position at the shot after opening the safety lamp to fire the gun with the safety light? A Yes, if it is safe to fire a shot at all, I suppose all the opening of the lamp to do it.]
24309. *Q* Then you do not think it necessary to have any special means of firing a shot? A If it is safe to fire a shot, I would say it is safe to open a lamp to do so.]
24310. *Q* And it was being done at Kumbia with your full knowledge? A Yes, until I got lamps to do it in other ways.]
24311. *Q* And it is being done at the present time? A No.]
24312. *Q* Now, do you know that we have evidence here that shots were fired at Kumbia with the safety light without any warning being done? A I do not believe it.]
24313. *Mr. Wade* [You had better find the passage, first, Mr. Lyngbaek. You will find you are mistaken again. The evidence was that the place was damp where that took place.]
24314. *Mr. Lyngbaek* [Do you know whether Mr. Lattigbaek made any report about the Kumbia disaster? A No, not to my knowledge.]
24315. *Q* Do you know that he was inspecting? A I saw him there after the accident; I did not know that he made an inspection.]
24316. *Q* Now, do you know that Mr. Attorneys has stated that, in his opinion, it would be negligence not to warn Kumbia mine now, but that, in his opinion, it was not negligence not to enter or before the disaster, because the certain dangers of coal dust and gas had been and then known before you?]
24317. *Mr. Brown Smith* [Does your Honor think that question is in any way—on question is to whether he knows that certain accidents have been given? Does it matter whether he knows or not?]
24318. *Mr. Brown* [I suppose something is going to be founded upon it.]
24319. *Mr. Lyngbaek* [I am going to fix him with the knowledge of the dangerous conditions.]
24320. *Q* Did you know what quantity of dust was dangerous? A Yes.]
24321. *Q* What quantity was dangerous? A If the road was dusty.]
24322. *Q* What quantity on the road? A Say 1/2 inch of dust.]
24323. *Q* Did you know that Hamilton had recommended those back headings? A, Harrison would not examine only the working places.]
24324. *Q* You know that we had practice? A That is the deputy's practice, to examine all working faces.]
24325. *Q* And who would examine the places not working, if the deputy did not? A When the monthly examination was made, they would be examined.]
24326. *Q* When monthly examinations? A When we made as we went through the work.]
24327. *Q* The monthly examinations at the mine workings? A They might be examined then.]
24328. *Q* No, do you say that you know that the deputy would not examine a place that was not being worked, and that the only time such a place would be examined would be during the monthly examination of the mine workings? A No, I do not mean to say that.]
24329. *Q* Tell me any other time such a place would be examined? A The underground manager would go there and examine it, and perhaps I would go there and examine it.]
24330. *Q* When would the under manager go there? A Oh, on making his rounds.]
24331. *Q* But you had no rule about it? A No, there was no rule about it.]
24332. *Mr. Hamilton* [Q And you as a regulated man when such places in this world happened? A No.]
24333. *Q* Then, in your opinion, it was not necessary to examine at all? A Oh, yes, just to see that it was working.]
24334. *Mr. Lyngbaek* [Q You mean it was to see if there was any fall of the roof? A Yes.]
24335. *Q* Then we may take it that the places not being worked were not examined for gas? A They were examined for everything.]
24336. *Q* Now, I want to ask you about some recommendations, do you approve of Managers, and under-managers, and deputies, and first-class being certified by examination? A No.]
24337. *Q* Yes do not? A No.]
24338. *Q* Do you approve of any of them being certified by examination? A Yes.]
24339. *What—Managers?* A Not if they have a certificate of service.]
24340. *Q* I am not talking about that. I am asking you, do you approve of Managers being certified by examination? A Yes.]
24341. *Q* Then you make the criticism that, if they have certificates of service, you do not think they should have to pass any examination? A No.]
24342. *Q* That would apply to you, would it not? A That would apply to me.]
24343. *Q* And, concerning under-managers, do you think they should be certified by examination? A They are examined now, too, if they have been long enough in the service, I do not see that they should be.]
24344. *Q* If they have got service certificates, you do not think they should? A No.]
24345. *Q* Do you think deputies should pass any examination? A No, only an examination by the Manager.]
24346. *Q* And shot-down? A No, only an examination by the Manager.]
24347. *Q* That is to say, you think the Manager is competent to examine any person for the position of deputy or shot-down? A Yes.]
24348. *Q* And you have shown your competency by what you have done.]
24349. *Mr. Wade* [I object to that.]
24350. *Mr. Brown* [That is not a proper remark to make to the witness; it is very objectionable.]
24351. *Witness* [Excuse me, Your Honor, Rogers has proved his ability by giving a reasonable certificate. I had had a lot to do with him before I appointed him as a deputy, and I knew he was qualified for the position, so also I would not have appointed him.]
24352. *Mr. Hamilton* [Q Do you regard a person who has passed, and has got a certificate by examination, as a competent person? A Yes.]

Examination by Mr. Brown Smith:—

24353. *Q* I understood you to say that you do not think that a deputy should be examined at all, except by the Manager? A Only by the Manager.]

25224. Q And do I understand you to say that the sort of examination you just figures through was sufficient, in your opinion, to qualify him as a deputy of a big mine? A In my opinion it was.
25225. Q Although you knew, as the result of your examination, that he had never seen gas in his life? A Yes, I knew that when he saw it he would know it.
25226. Q And you knew that he had never seen the effect of gas upon a lamp in his life? A I did not know that.
25227. Q If a man has experience, gas, he would nevertheless miss the effect of gas upon the light of a safety-lamp, you do not see gas, do you? A No, he had never seen gas.
25228. Q And you know it, from what he told you? A Yes.
25229. Q And you know, therefore, that he had never seen the effect of gas upon a lamp? A Yes.
25230. Q And you considered that a sufficient examination to qualify him for the position of deputy? A Yes. I asked him, "Suppose we went into a place where there was gas, what would you expect to do?" and he told me what he would expect.
25231. Q Theoretically he seemed to know it? A Yes, theoretically he seemed to know it.
25232. Q Now, I want to take you to the question of the fall on the 14th night, I want to ask you whether you agree with what Latch told, that, on the 14th night, his previous experience had been that, as soon as the timber was taken out, the roof fell, or fell the next morning. That is what he told you? A Well, none of it might fall.
25233. Q He said that was his general experience with regard to the 14th night, is that right? A Yes; that is my experience.
25234. Q Well, when you found a large area of roof hanging for a whole week, that contradicts you as being experience, with regard to that part of the mine? A No, not that part of the mine.
25235. Q I am talking of that part of the mine, the part of the mine reached by the 14th night? A I did not think it was dangerous.
25236. Q I did not ask you that, you have heard me say what Latch said was his general experience with regard to the roof reached by the 14th night, and you say you agree with that. Now, I ask you—did it strike you as anomalous that a large area should have stood for a whole week, was it anomalous? A Not in a place of that kind, it was not anomalous.
25237. Q What do you mean by "of that kind"? A Because there was a 30 yard pillar, a strong pillar, on the outside only, between the 14th night and the travelling road? A Yes.
25238. Q The pillar running parallel with the travelling road? A Yes.
25239. Q Was that the only difference between it and other parts? A Yes, that would keep it hanging longer than perhaps it would if that pillar had not been there.
25240. Q That was the only difference? A Yes.
25241. Q And the knowledge that that was there caused you not to be surprised that it hung so long? A Not to be surprised.
25242. Q Did you expect it might come down any day? A Yes.
25243. Q Did you make any difference in your management as to that part of the mine? A No.
25244. Q When had been your experience of the way in which the roof fell? Did it fall all in one block, or, as Dr. Roberts says, in slabs and small slabs? A The first fall would fall in small bits, and the second fall might fall perhaps in big blocks or big slabs. It is not always the same.
25245. Q That has been your experience? A That is my experience.

[At 11:45 the Commission adjourned until 10.]

EXAMINATION

(On resuming at 10 p.m., Mr. W. H. Frost, offered to take shorthand notes of the evidence and proceedings.)

JOHN C. H. MINGATE was sworn, and examined, as before.—

Examination in chief by Mr. Bruce Smith:—

25278. Q What is your name? A John C. H. Mingate.
25279. Q What is your present position? A Analyst and As. spec. in the Department of Mines.
25280. Q You are the present analyst? A In charge of the Chemical Branch.
25281. Q What are your qualifications as a diploma? A I am a Fellow of the Institute of Chemistry, Great Britain, and Ireland, and a Fellow of the Chemical Society of London.
25282. Q How many years' experience have you had in this special branch of knowledge? A Over twenty-five years.
25283. Q I believe you received from the Department various samples of coal dust; did you not? A Yes, through Inspector Whiston.
25284. Q How many did you receive? A Twelve samples.
25285. Q You submitted three samples, did you not, to certain tests, unscrupulous and chemical? A Yes.
25286. Q Before you submitted them to the tests, did you ascertain what was the average percentage of volatile matter in the coal dust—I mean in the coal dust other than that contained in these samples? A Not in the coal dust in the coal itself.
25287. Q Where did you get the coal from in order to discover the normal percentage of volatile matter? A Well, it would be received departmentally. It would be sent to me officially by the Department.
25288. Q From whom? A From the Statens, the Government Geologist.
25289. Q How much did you receive? A I cannot remember now. As a rule, it would be about a pound sample.
25290. (To Mr. Frost.) Q Enough to give you an opportunity of making tests? A Yes.
25291. (To Bruce Smith.) Q Did you ascertain the percentage of volatile matter in the coal? A Yes.
25292. Q What did that show? A 29.5 per cent.
25293. Q Now, you have had a good deal of experience in connection with the volatile coal of this plant? A Yes.
25294. Q I believe that you have ascertained that the percentage you have just mentioned in connection with the sample of coal is an average of almost all the coal in the southern district? A Yes.

Witness—J. C. H. Maggee, 11 March, 1905.

17912. Q You have found the average of the southern coal to be of that particular percentage of volatile matter? A An average of twenty-one samples from the South Coast gives volatile hydrocarbons at 35.1 per cent.
17913. Q Be that there is an appreciable difference in the percentage of that particular sample of coal from Mount Kembla Mine and the average of all the other southern mines? A The average comes out very close, within 1 of 1 per cent.
17915. Q I think you have found the opinion that the Kembla coal does not differ appreciably from any of the other southern coals? A It very closely resembles Mount Pleasant and Mount Kure coal.
17916. Q Substantially? A Is not the composition of the Kembla coal different from the composition of the coal from some of the other coals? A From some of them—very many.
17917. Q Mr. Bruce Smith? Q What is the lowest percentage you have got in coal from the southern mines? A I think down to 15 per cent.
17918. Q Mr. Robinson? There are some of them down to 14 per cent.
17919. Q Mr. Smith? The Metropolitan Colliery coal shows 16 per cent.
17920. Q Mr. Bruce? A There is a statement published giving the results—see these results from your own analysis? A Yes, Your Honor.
17921. Q Mr. Robinson? I do not see the value of comparing averages.
17922. Q Mr. Bruce Smith? It is only to show that the examination of the coal did not show any great departure from the samples obtained from other mines.
17923. Q Witness? I see that the minimum is given as 10.56 per cent.
17924. Q Mr. Bruce Smith? Q And the maximum? A 25 per cent.
17925. Q The coal showed 22 per cent, and you say it compares closely with Mount Pleasant and Mount Kure coal? A Yes.
17926. Q That is your percentage of the coal in its normal condition? A Yes, 22 per cent. is a fair average.
17927. Q You subjected them twelve samples, without knowing where the samples came from, to a chemical and microscopic test? A Yes.
17928. Q Mr. Robinson? I thought the witnesses only showed microscopic tests? A
17929. Q Mr. Bruce Smith? Both. The Commission had some tests which were made by Mr. Hensell. Mr. Maggee's tests are microscopic and chemical.
17930. Q They are two distinct kinds of tests? A Yes.
17931. Q You do not know what particular part of the mine the samples came from? A No.
17932. Q They are numbered, are they not? A Yes.
17933. Q You kept the numbers of the samples, and you have prepared a statement showing the percentage of volatile matter in each sample which was handed to you? A Yes.
17934. Q Have you prepared a statement showing the number of the samples, the percentage of vol., the percentage of volatile matter, the percentage of moisture, and the percentage of ash? A Yes.
17935. Q Would you take that statement from your report for a moment. I want to hand it to the Commission. [The statement was then handed to the Commissioners.]
17936. Q You show, first of all, the number of the samples? A Yes.
17937. Q You show the volatile matter, you show the moisture, and you show the ash? A Yes.
17938. Q And that column is the report headed "Notes" [No. 2] entitled the two last columns—the moisture and the ash? A That includes the fixed carbon and volatile.
17939. Q Now, numbered in sample marked No. 3 is 1, what does your report about that? A Sample marked No. 1 is a, on being examined under the microscope, using a 1-in. objective power, distinctly show that the fine coal dust has been subjected to a partial caking, the surface edges showing the coarse, porous structure of the coals, but from the appearance of the cells, particles, and the percentage of volatile matter left, the dust does not appear to have been subjected to a great heat.
17940. Q Mr. Bruce? What is the temperature at which "severe heat" begins—you might define it? A 400 degrees centigrade.
17941. Q Mr. Bruce Smith? Q What would that be Fahrenheit? A 1,112 degrees Fahrenheit.
17942. Q That is your standard of severe heat? A Yes.
17943. Q These samples did not reach that heat? A No.
17944. Q With regard to sample No. 3? A No. 3 consists largely of solid refuse, the hard, coarse porous structure of the coals being readily visible, also pellets or globules of fine coal, somewhat resembling a coal dust. The chemical examination proves that the coal dust has passed with a large proportion of its volatile matter.
17945. Q This sample No. 3? A This sample shows a more shelly-looking appearance than in the former sample, the hard porous structure of the coals being readily visible, and the solid particles being subjected to one another by the action of the melting of the bituminous matter in caking, it also contains pellets or globules of coals, resembling that in appearance. The chemical examination shows that the coal dust has passed with a large proportion of its bituminous matter.
17946. Q Mr. Bruce? This sample had been subjected to a higher temperature? A Yes.
17947. Q Mr. Bruce Smith? Q This sample No. 11? A This sample, on microscopic examination, showed that the fine dust had been subjected to a partial caking, the surface edges showing the coarse, porous structure of the coals, also pellets or globules of coals, resembling that in appearance. Mixed with the coal dust were a number of pieces of wood, several of which, examined, showed decided evidence of having been charred by flame.
17948. Q You group Nos. 3, 4, 10, 11, and 12 together? A Yes. All these samples distinctly show that the fine coal-dust has been subjected to a partial caking, the surface edges showing the coarse, porous structure of the coals. From the appearance of the solid particles and the percentage of volatile matter left, the samples do not appear to have been subjected to a severe heat.
17949. Q You make a special remark about Nos. 5 and 6? A Yes. From the appearance of the cells, and the low percentage of volatile matter found by analysis, these samples appear to have been subjected to a much more severe heat than any of the other samples examined.
17950. Q In your opinion, have any of these twelve samples been subjected to flame—you do mention No. 7? A Yes. In this sample was a number of splinters of wood which had been charred by flame.

- 254131 Q. How many of these samples have been subjected to tests? A. In my opinion, more or less, the whole of them, but Nos. 5 and 6 especially so.
- 254132 I will now hand to this report. (The report was marked Exhibit No. 85.)
- 254133 Mr. Robinson Q. You say that samples Nos. 9, 10, 11, and 12 have been subjected to severe heat,—that you gave up experiment with each of the temperatures in which they would be exposed? A. It is a very hard thing to do. There has not been sufficient heat in thoroughly cooking them.
- 254134 Q. What temperature do you think they have been subjected to? A. I should say a cherry red heat.
- 254135 Q. What is a cherry red heat,—what temperature? A. Between 700 and 800 degrees C.—1,312 degrees Fahrenheit to 1,472 degrees Fahrenheit.
- 254136 Q. Is it possible that conditions might exist with some of the vehicle constituents at a less heat than that? A. Yes.
- 254137 Q. What is the lowest temperature? A. Possibly at 300 degrees Fahrenheit, but I would not say for certain, as I have not tried the experiment.
- 254138 Mr. Brown Q. The duration of time in exposure? If a particle were subjected to a high temperature for an infinitesimally short space of time, would that be the same as if a particle were subjected to a lower temperature for a longer time? A. Very possibly.
- 254139 Q. Can you say that an infinitesimally short exposure would complete cooking, if the particle were subjected to a high temperature, in the same way that a lower temperature would complete it if it were exposed to that temperature for a longer time? A. I should expect that with a high temperature the necessary matter would be cooked more. Where you have a low heat, the rate would be open a little more. I may say that coal will give off gas under normal pressure.
- 254140 Mr. Robinson Q. What is the cooked gas? A. Yes, it is not the pure chemical constituents.

WILLIAM ROGERS, previously sworn, was further examined, as under:—

Examination by Mr. Bruce Smith (continued):—

- 254141 Q. I was asking you before, whether you agreed with the account given by Mr. Lohak as to the manner in which the roof finally fell on the 30 acre plot, when he said that it finally fell the moment the timber was taken out, and earlier later than the next morning? I think you said generally that was a fair description? A. Generally it is.
- 254142 Q. Then I asked you, when you found that after the first fall the roof had not come down, and that a week elapsed without any subsequent fall, did not you begin to think it unnecessary for that part of the mine? A. I thought it was standing rather long.
- 254143 Q. It did occur to you? A. Yes.
- 254144 Q. You did not do anything, as went to do anything, in consequence of that impression? A. No.
- 254145 Q. Can you tell me how much and was taken out of the site right after Lohak left? A. He fell on the 5th of June.
- 254146 Q. Can you tell me how much and was taken out? A. I can tell you the area. There was one pillar on the right-hand side 30 or 40 yards long, and there were two pillars of the left-hand side, I suppose each 15 yards.
- 254147 Q. Was all the coal in there taken out between the time of Lohak leaving on the 5th of June and the disaster? A. Yes.
- 254148 Q. No pillars at all, or appreciable parts of pillars, were there? A. No.
- 254149 Q. In a time or within that about 1,000 tons of coal were removed up by the fall? A. That is correct.
- 254150 Mr. Smith Q. No one said that it was true.
- 254151 Mr. Brown Q. That was right back in the past.
- 254152 Mr. Bruce Smith Q. You deny that any coal was left in the area of 40 square yards—that is, coal in any appreciable quantity? A. No, there was not any left.
- 254153 Q. Well, all the coal was taken out of the area and the roof still remained? A. Yes, excepting the first fall, a week before the disaster.
- 254154 Q. Now, you told Mr. Loughlin that you do not believe that the whole 40 yards came down in one solid block of stone? A. I do not believe it.
- 254155 Q. Not even after the first fall? A. No.
- 254156 Q. In your opinion, how did it come down? A. I think it came down in big lumps—bigger or smaller masses.
- 254157 Q. Explain for how long a period? A. It would not be long.
- 254158 Q. Minutes or hours? A. A few minutes.
- 254159 From the time it began to fall,—not the first fall,—until it concluded, you think it would become smaller? A. When it began to fall, it would all come down in a few minutes.
- 254160 From what you are in that mine, you do not believe that a great block of stone, 40 yards square, fell down, either you and first, or came down altogether? A. I do not believe it fell anything like that.
- 254161 Q. When you say some minutes, do you mean five or five minutes, or do you mean twenty minutes? A. No, a minute or two.
- 254162 Q. And what reason have you for saying that it took a minute or two? A. It would start to fall in little bits before it all came in a body—I do not mean to say black.
- 254163 Q. Suppose it was 5 or 6 inches thick—do you mean that some part of the fall might come down, and the rest afterwards, or do you think it likely that it would come down in layers? A. I do not mean that. I mean that it would all come together over the whole of the area, one big on top of another. I mean that it would all come together.
- 254164 Q. When you say some minutes, do you mean five or three minutes? A. I mean one or two minutes.
- 254165 Q. What reason have you for having one or two minutes? A. I think it would all come in that time. It would take that time to fall.
- 254166 Q. Why do you think that? You have had no experience of similar falls. It is not knowledge; why do you think it? (No answer.)
- 254167 Q. Do you not know why you think it? A. I could not say why I think it would take that long to fall.
- 254168 Q. It is a guess? A. It is nothing else.

Witness—W. Rogers, M. Stark, 1935.

- 20483 *Dr. Robertson.* Q Are you judging from experience? A Yes, from my experience.
- 20485 *Mr. Bruce Smith.* Q Can you tell me what experience, at any time, your observations is based on? A I have seen this before, but not upon the same scale as this one.
- 20487 Q How would you know how long they took to fall? A I might be watching them.
- 20489 Q A large one? A Fairly large.
- 20491 Q What do you call large? A Perhaps 15 yards square.
- 20493 Q Fifteen yards square? A Perhaps that.
- 20495 Q With openings like this for the air to come through? A No, larger square.
- 20497 Q When you observe all your best? A No, but the lights were down and.
- 20499 Q That is the most serious thing which took place? A Yes.
- 20501 Q On that occasion, how long was the fall from beginning to end? A A minute or so.
- 20503 Q That is your experience, but the whole took place when? A Yes.
- 20505 Q Do you think that this fall was slow enough for the air below to get above the mass of stone falling? A No.
- 20507 Q You think the stone would be too solid for the air to get above? A Yes.
- 20509 *Mr. Fink.* Q It is like pulling the trigger, say? A.
- 20511 *Mr. Bruce Smith.* Q Do you consider that the roof fell so much more slowly that the air could not escape into the cavity from which the stone fell? A I say I do not think the air would get through the stone, to get above the stone. The way the stone came down would be that the air would come another, and it would not let the air go above it.
- 20513 Q You were asked about the leaving of the floor. You saw darker look as if the roof were falling? A It looks as though the roof were sinking, and some people might be in there if it was the roof.
- 20515 Q But it is the leaving of the floor—does it not come in the next? A Yes.
- 20517 Q What is the reason for the not moving here? A In those places in which it has occurred, in fact it is where the pillars have not been weakened.
- 20519 Q You say that it did not get in the way in that part of the mine? A Not in that part.
- 20521 Q Is it not more likely to get in the way when the pillars are taken out? A No.
- 20523 Q Is not the pillar set as a support, and keep the floor down? A No, the pressure of the pillars keeps the floor up.
- 20525 Q You remember these notes being made by Dr. Robertson after a number of you had been in the mine—you sat down and talked them over? A No.
- 20527 Q You went to the mine with Dr. Robertson and one or two men? A Yes.
- 20529 Q And certain notes were read over to you afterwards? A No.
- 20531 Q Do you remember on one occasion going into the mine with Dr. Robertson? A Yes.
- 20533 Q You made observations, and they made these notes afterwards—did you make any notes? A No, I made no notes. Several of them were taking notes. I saw Mr. Hay making notes.
- 20535 Q He did not read his notes to you? A No.
- 20537 Q Did Dr. Robertson? A No, I believe that Mr. Hay acted as note taker to Dr. Robertson.
- 20539 Q Did you have these notes read to you by Dr. Robertson? A No.
- 20541 Q You have never seen a type-written copy of them? A I believe I saw a copy of the notes which you had in your hand.
- 20543 Q Look at these notes. Did you have a type-written copy of them given to you? A Yes, I believe I had a copy of them.
- 20545 Q Who gave you that copy? A It was sent by post.
- 20547 Q Did you ever read over the matter which it contained before it was sent to you? A No.
- 20549 Q You never wanted to it? A No.
- 20551 Q You were never asked to agree to it? A No.
- 20553 Q These notes which Mr. Hay took—do you know what they were? A No.
- 20555 Q Did you see them, or hear them read? A No.
- 20557 Q Do you know what they contained? A No.
- 20559 Q You do not know whether they agreed with these type-written notes or not? A No.
- 20561 Q And you have never been asked from that day to this whether those notes represented what was observed in the mine? A No.
- 20563 Q You never discussed what you saw, as a sort of committee—you never discussed it amongst yourselves? A Dr. Robertson asked me what I thought of these notes—did I think they were something like what you saw in the mine.
- 20565 Q He asked you afterwards? A Yes.
- 20567 Q And you said yes? A I believe that that was what he said to me.
- 20569 Q Did you ever tell Mr. Hay anything to make down? A No.
- 20571 Q Do you remember coming to this passage which continues with the words, "From going before"? A No.
- 20573 Q When was this type-written copy given you in real over? A I think just after the consultation was made—soon after.
- 20575 Q Before the Commission called? A Oh, yes.
- 20577 Q After the inquiry was over? A After the inquiry, I believe.
- 20579 Q Did you understand them? A The notes—yes.
- 20581 Q For instance, this passage—"From down on main road to nearest hole poorly as there, only level sufficient to stand dust or from direct entrance"? A Yes, I read it.
- 20583 Q Do you understand it? A Yes.
- 20585 Q What does it mean? A It means that the air was hot after the explosion, and that there may have been had enough to kindle the coal dust.
- 20587 Q What does "poorly as there" mean? A It means that it may have been some water, steam.
- 20589 Q Does it mean that you are in doubt whether there was heat or not? A No.
- 20591 Q Why "poorly"? A You might infer they were in doubt.
- 20593 Q Does it mean that something? A Yes.
- 20595 Q Is that the conclusion you came to? A Possibly so, I think.
- 20597 Q Possibly then, and possibly not then? A Yes, possibly—no.
- 20599 Q That is your conclusion? A Yes.

- 185233 Q You think possibly there, and possibly on them, your mind is as clear? A My mind is as clear.
- 185234 Q Your mind is as clear whether there was there or not? A Yes.
- 185235 Q Is that the condition of mind that the others were in, do you take it as such? A No. I do not know.
- 185236 Q Who gave you that pipe [Exhibit No. 54]? A The underground manager, Mr. Hestholm.
- 185237 Q When did he give it to you? A Some weeks after the disaster.
- 185238 Q Did he explain why he had kept it on his person all that time? A He gave it me as soon as he found it.
- 185239 Q Did he tell you that he had just found it? A He told me that he had just found it. We went to visit the place.
- 185240 Q Can you account for his not giving it you before? A He told me—[interrupted]
- 185241 I do not want to know what he told you.
- 185242 Q The question is asked of the witness—“can you account for his not giving it to you before?” The only way he can account for it is by stating something which was told him by somebody else.
- 185243 Mr. Brown Smith Q I do not want it.
- 185244 Mr. Brown Smith He wants to give it.
- 185245 Mr. Brown Smith He cannot prove it as yet.
- 185246 Mr. Brown Smith He should like to hear it.
- 185247 Mr. Brown Smith In that case the witness had better tell us all that transpired.
- 185248 Witness This was not the first time that Mr. Hestholm visited this place, he had been a dozen times before. He went there, and discovered the mines where the miners had been buried with his feet, and, by doing that, he covered up the pipe, and the box of matches, partly buried, was lying on the pipe.
- 185249 Mr. Brown Smith Q That is what he told you? A He went on there, and discovered on how he got it. He gave it me the next day after he found it.
- 185250 Mr. Hestholm Q Do I understand you that he had been there previously with a view of examining the place? A Yes, he had been there. He was showing the mines with his feet, and to his surprise he found the pipe. I had been there before with him.
- 185251 Q Did you go on previous visits? A Yes.
- 185252 Mr. Brown Smith Did he move the chest on previous visits? A No.
- 185253 Q Did you take any steps to find out whose pipe it was? A I have not.
- 185254 Q You have taken no steps? A No.
- 185255 Q You have not asked the men who happened to go there after the disaster? A No. And there are no men left who were working there before the disaster.
- 185256 Q Have you asked any of the relatives of the men? A No.
- 185257 Q You have not done anything to find out whose pipe it was? A No.
- 185258 Q These are relatives of the deceased men James Living and working at Mount Kimble yet? A They are there.
- 185259 Mr. Hestholm Q Do you know that the gentlemen who signed these type-written notes reported that, after finding the remains of the three brothers, they covered the chest? A I am not sure about that.
- 185260 Mr. Brown Smith Q With regard to the witness question, you say, on page 52 of the deposition taken at the inquest—

“Naturally was employed actually for watering the dust; the real reason for having the leads there was to hide the water and not to water the mine, the leads were made for both purposes.”

A Yes.

185261 Q You remember Matthew Foss's evidence on the same subject. He says—

All the water that falls by way of the roadway comes from one or other of the natural springs in the mine; when the leads are set in use they are placed in the most quiet place, where it is thought they will not be needed to hide water where it has accumulated, the water is cooled by water buckets and put into the leads, and then they are taken away. If the water does not accumulate, the leads are shown not for carrying water along the road. The primary use of the leads is to carry water away, so as to get on with the working, the water is always taken in the explanation that you and all the men, or to a pump to pump it out, or to take to the last convenient place to get rid of. When a plug is taken out of a tank, the tank takes two or three minutes to empty, the tank is stopped, the plug is taken out, and the plug takes about 10 minutes to empty, water may collect in the road by the working, the water is distributed very extensively, the emptying can be made to collect in a collection of water, it is not a long way. Then men, working in what is called, might have used for some time in the mine, leads of water in watering (and in watering) after. When there have not been anything like that quantity used on the mine, but when some of the men have been watered, in wet weather there is an unlimited supply of water in the mine, even in the dry season there are thousands of leads full of water come into the mine and go out in a night. There is no mind of water in the mine.

Is that true—as to the watering of the mine and the way you get rid of it? A Yes.

185262 Q You admit that the primary object was to get rid of the water? A Yes; and to put it on the dust in the mine.

185263 Mr. Hestholm Q With regard to the finding of this pipe. This passage is from the report of the visit of inspectors made by Messrs. Johnston, Carter, Bellows, Robertson, Thomas Cook, and J. C. Brown—

“Near working place 12 on L 12 we found the remains of the men by two of the exploring party on the right of the explosion and reported by J. A. W. Johnston and Mr. Johnston. The box had contained some matches, chalk and paper, and apparently had been used as a box. We examined the remains.”

If they report that they examined the remains, there would be nothing left? A It looked to me as though it had not been examined.

185264 Mr. Hestholm I visited the place, and it did not appear to me to be examined.

185265 Mr. Brown Smith It may have been examined and put together again.

185266 Mr. Hestholm I do not know why it should be put into the mine, if it were not examined.

185267 Mr. Hestholm Q Had there been many people around the place looking for the origin of the fire? A I do not think so.

185268 Q How many people? A People were not allowed to go into the mine so far as they think.

185269 Q Do you think that some searching parties dropped a pipe? A No, I do not think so.

185270 Q Have you made any inquiries from those who have been there, as to whether they know who had dropped the pipe? A I only know the party that was with myself. I do not think the pipe was dropped in that way.

From—W. Rogers, 11 March, 1905.

26568. *By Bruce Smith* [Q] You remember admitting that no one had examined the face of the back heading (No. 1, the morning before the disaster)? A. Yes.
 26569. [Q] You say that no one had examined it, to your knowledge. Do you say there was no reason? A. Because there were no men working there.
 26570. [Q] That is your reason for not inspecting it? A. Only working places were inspected.
 26571. [Q] How many days has it been left beyond the limit? A. For two months before—we are worked there.
 26572. [Q] Unless anyone went beyond the limit they would not discover whether the brattice was working or not? A. The underground Manager would go there.
 26573. [Q] He often? A. He would go, because it is his practice to do that. Perhaps, he would go once or twice a week.
 26574. [Q] Perhaps, he would not? A. Perhaps, more often.
 26575. [Q] Is there any fork that shows it? A. There is only the report back.
 26576. [Q] As far as you know, no one had been there for a week before. Do you know that Morrison says that he did not go beyond the limit, and that for all he knew it was quite possible that the brattice might be down. Do you know, of your own knowledge, for a week prior to the disaster, whether the face of the back heading had ever been examined by anybody, to see whether gas was there or whether the brattice was in good order? A. I cannot say. The brattice was not down, because it was not down after the disaster.
 26577. [Q] You know that of your own knowledge? A. I know it was up at the time.
 26578. [Q] When did you go up to see it? A. Some days after the disaster.
 26579. [Q] How many days? A. Perhaps, two or three days.
 26580. [Q] Do you not know that Mr. Robinson found many hundred feet of gas three hour days afterwards? A. I was with him. The brattice was down at the bottom end, but it was up at the face.
 26581. [Q] Was not the face of the brattice being down at the bottom and one of the causes to which you would attribute the gas? A. I could not account for it.
 26582. [Q] Was the brattice out of order four days after the explosion? A. Yes. I was there at the time.
 26583. [Q] Do you not say that you found it had been damaged after the explosion? A. Not at the top end.
 26584. [Q] The disengagement of the brattice was not the cause of the gas being present? A. I could not say.
 26585. [Q] Was it disengaged during the four days afterwards? A. Yes.
 26586. [Q] Which part? A. At the bottom end.
 26587. [Q] All you can speak to before the explosion is the brattice outside the limit? A. No, inside the limit.
 26588. [Q] How far is it? A. As far as you could see in without going in; I could not see up to the point.
 26589. *By Robinson* [Q] What limit? A. The limit by Morrison's plan.
 26590. *By Bruce Smith* [Q] You cannot speak of anything excepting for a week before the disaster? A. I cannot.
 26591. [Q] The brattice was in good order inside the limit after the disaster? A. At the top end.
 26592. [Q] What do you call the top end? A. Near the face.
 26593. [Q] Where do you consider the gas came from? A. I could not find out, I was surprised to see it.
 26594. [Q] Can you find any mention of anybody having gone up to the face before the day of the disaster? A. I was by the report book that there is an entry on the 30th of July, as follows:—

Night watchman reports:—“At 1 a.m. everything all right. Reported the men in the stamper and dry house at 10 p.m. from 10 p.m. to 1 a.m. and visited No. 1 Right once looking in company with Henry Clegg, and measured by the length of your timber, and arranged for setting poles for ventilation and laid out of 50 p.m. to 1 a.m. five poles in the 1st Right, and in a few places in the 1st Left, and in where same was made in No. 2 Right stamper. Found everything all right, and came out at 4.15 p.m.”

26595. [Q] Is that what you take as a visit to the back heading? A. Yes.

Re-examined by Mr. Webb:—

26596. [Q] How often have you been over the scene of the disaster altogether? A. I could not say. I dare say I have been twenty or thirty times.
 26597. [Q] It has been cleared up now? A. It is not all clear.
 26598. [Q] Between the 1st Right and the 1st Right—that has all been cleared up? A. Yes.
 26599. [Q] How often have you been over that ground since it has been cleared? A. Half-a-dozen times or more.
 26600. [Q] Is it now? A. I should think so.
 26601. [Q] I want to know whether you have been sufficiently often to recall things you saw? A. I have been there on twenty times.
 26602. [Q] I am talking of what you saw? A. I saw no dust.
 26603. [Q] You saw timber down, and slabs turned over? A. Yes.
 26604. [Q] How often did you go there—between the 1st Right and the 1st Right? A. There were very few slabs heaved about there.
 26605. [Q] I want to know how often you were there? A. Follows or twenty times.
 26606. [Q] There was one thing which Mr. Letch was not sure about, and that was—was there more than a 30-yard pillar left as a barrier to the 1st Right? A. There was a 30-yard pillar, there a board, and then a 30-yard pillar, in the 1st Right when Letch left.
 26607. [Q] Mr. Letch has drawn the rough sketch? A. Yes. We worked all the coal up to the 30-yard pillar, but not before Mr. Letch left.
 26608. [Q] When you finished the 1st Right, was there any other pillar left besides the 30-yard pillar? A. No. I thought you wanted to know what coal there was left when Mr. Letch was away.
 26609. [Q] You say you saw something laid down in this case in the 1st Right. Would that be the first fall? A. Yes, that would be the first fall.
 26610. [Q] What is the time that usually elapses between these falls? A. It depends on the circumstances and the place.
 26611. [Q] Was there anything starting in the roof standing for a week before the second fall? A. Only that it was close to a 30-yard pillar.

35540. Q. Was there anything alarming or dangerous to the roof having stood for a week before the second fall? A. I do not think there was anything alarming about it.
35541. Q. There was a good interval the pillar you were standing and the barrow pillar. Some of that had cut below. Do you know how much? A. Horrocks told me that he had been around that pillar on the right, and that the man was working. He went round that pillar and the next one.
35542. Q. You do not know of your own knowledge? A. I am not sure. There could not be much down, or else he could not have gone round.
35543. Q. Although the roof was standing for a week before the second fall, do you think there was any danger from that roof to the men who were working up in the face of No. 11? A. No, I do not think there was any danger at all.
35544. Q. You said that there were three shocks felt on the last night in the barrow pillar? A. I believe there were.
35545. Q. Would that make any difference in the way of the breasting off of the roof where the pillars had been? A. It would not make much difference in a big fall like that. It would break over the top, it would break on the half of each shock. It would split itself on the shock.
35546. Q. You told Mr. Lynam that you could not tell where the biggest cracks were? A. No.
35547. Q. How far could you see in? A. Not very far.
35548. Q. How far? A. A few feet.
35549. Q. Could you see up a hole? A. Yes.
35550. Q. How far could you see an opening? A. If it is 20 feet.
35551. Q. Do you know where a roof falls in big dips, the days break after they fall? A. It depends on the thickness of the legs, if they are thin, they will fall. If they are thick ones, they will not.
35552. Q. You were asked whether James would be near the blast? A. Yes.
35553. Q. Did there any connection between Atkin's place and Thomas's Place? A. Yes, you can travel from it.
35554. Q. That is the way the air goes? A. Yes, it would go that way.
35555. Q. You say that you heard of gas before Gallagher's man? A. In the 4th Left.
35556. Q. Were both these men before the furnace was put up? A. No, the first one was. In Gallagher's man, the furnace was up.
35557. Q. You were asked a question by Mr. Lynam. "Do you not say that no one was actually employed to water the dust?" A. No, they had other work to do. There was one man employed doing nothing but watering, but there were others who would assist him. There was only one man who was always with the water.
35558. Q. You were asked the question: "Do you not know that dust is dangerous?" And you said: "Yes." Under what conditions is it dangerous? A. If there is a lot of dust lying on the floor, and any blasting is going on near it.
35559. Q. Do you mean in the presence of a fire? A. Yes.
35560. Q. The would not say it was dangerous if a man were walking along there and dropped a match? A. No.
35561. Q. You mean if blasting was going on in the neighbourhood? A. Yes; I should consider it dangerous.
35562. Q. If blasting is going on in a road which is dusty, you would take precautions? A. Yes, certainly I would.
35563. Q. What would be the simplest thing to do? A. Either clear away the dust or water it.
35564. Q. You say that you have got some iron appliances for watering? A. Yes.
35565. Q. For watering when put? A. You can water the floor, and a little of the sides, by the way you fix the plug in the back. That was before the disaster.
35566. Q. I am speaking of after the disaster. What are these appliances for? Are they for watering the roof and the roof, or what? A. They are to water the roof and the roof and the floor.
35567. Q. What appliances have you got? A. Iron tanks with pipes round them, and holes in the pipes, there is something attached to the wheel of the tank which pumps the water, and you can spray the roof.
35568. Q. Have you stopped spraying the roof in consequence of anything? A. I found that I have had too many leaks made, and I have had to stop watering the roof because the water was bringing it down.
35569. Q. Mr. Lynam said, "I think, if you had your way, you would stop them." His object prevented you from having your way as regard to the matter? A. No.
35570. Q. Mr. Lynam? He said he would, if he had his way.
35571. Q. What? I know he said it—you put it into his mouth.
35572. Q. You say that there are openings from the old air shaft to the cross-air heading? A. Yes.
35573. Q. How long have they been there? A. They have been there for many years.
35574. Q. You mean it? A. Yes.
35575. Q. Has there been any trouble at all in the way of gas coming out of the gas into the intake? A. No.
35576. Q. Suppose the gas was giving off gas—would not that be a likely way of finding it? A. Yes.
35577. Q. Do not men pass along that intake every day? A. Yes.
35578. Q. Do and not? A. Yes.
35579. Q. And then and go out that way? A. Yes.
35580. Q. In that cross-air shaft or area as you would expect to find black-damp in? A. No, I would not expect to find it.
35581. Q. With regard to Mr. Rogers—did he get his certificate before or after you made him deputy? A. After.
35582. Q. Did you make any inquiries from anybody about his capabilities? A. No, only what I asked him myself—and only Mr. Jonathan May.
35583. Q. Why not? A. He was his teacher. He told me what he thought about him, being a very steady fellow and being industrious, and he thought that he would make a good man. He asked me to do what I could for him.
35584. Q. Mr. Fildes? Q. Had Mr. Rogers gone up for an examination and failed before you appointed him? A. Yes, he had been up for a second-class certificate but had not passed, but he had a good report.
35585. Q. Mr. Fildes? Q. Was there no examination for an under-manager's certificate? A. Yes.

Witness—W. Rogers, 11 March, 1895.

20424. Q A question was put to you in this way:—"This fence, across No. 1 heading, beyond which you could not go." Is that correct—you could not go? A The Managers or deputies was going where they like.
 20425. Q What is the purpose of the fence? A To stop the miners or the windmen from going through.
 20426. Q Did there had been any gas in the face of No. 1 heading, it must have been collected there? A I lay over parties.
 20427. Q What was the first place—the first head? A Morley's.
 20428. Q That was it he continued duty? A From a day.
 20429. Q If any gas had been given off from the face of No. 1 heading during all those months, do you think that it would have blown itself at those places where Farrell, Teed, and Jeffers, were? A Certainly I think it would, because they were on just about the same level.
 20430. Q The air currents would be going to them from the face of the coal? A Yes.
 20431. Q In regard to this place—the one mentioned when it was Morley's was appointed under-manager? A I could not fix the day he was appointed.
 20432. Q Was you the one by the request—that was on in September 1885—that is the week—was it after that? A Yes, after that.
 20433. Q Do you remember how long after he had been appointed under-manager it was, when he gave you that gas? A It might be a fortnight or more, I could not be certain about it.
 20434. Q You said that you thought the underground manager would be at the face of No. 1 heading twice a week? A Yes.
 20435. Q What you are speaking from in the ordinary position—was it the duty of the underground manager, or are you speaking from what you have seen? A From what I have seen, and from what I know of him. I may say that the deputies are men in whom I have every confidence, as being steady, honest, upright, conscientious men, who have been in the mine for many years, and they are men who, I know, would not give me a wrong report.

Examined by Mr. Robertson:—

20436. Q You say that you have had twenty-eight years' experience in mining? A Yes.
 20437. Q Some in North Wales, and some in Scotland? A Yes.
 20438. Q You were in the position of a colliery manager in North Wales? A Yes, at three different places.
 20439. Q Were those extensive mines? A Yes.
 20440. Q Did they work a large number of men? A Yes.
 20441. Q Of different thicknesses? A Yes, of different thicknesses.
 20442. Q And by different methods of working? A Different methods of working.
 20443. Q Were they gassy mines? A Yes.
 20444. Q And were you also in a similar position in Scotland? A Yes, for five years.
 20445. Q In deep mines? A In deep mines.
 20446. Q Where they employed a large number of men? A They employed a large number of men.
 20447. Q And having machinery? A Having machinery of different descriptions.
 20448. Q Did you ever, during the course of your connection with those mines, have any serious accident; or did any serious accident occur under your management as under-manager? A Nothing serious.
 20449. Q You have had great experience with gas? A Yes.
 20450. Q With all the gases met with in a mine? A Yes, I have not had much experience with white-damp, but with black damp and fire-damp I have had great experience. I was foreman in North Wales for a considerable time in a gassy mine.
 20451. Q And under your management, at all those mines, I presume you had had considerable experience with falls? A Yes.
 20452. Q For instance, at Brynha, how thick was that seam? A The part of the seam that was worked would be 6 or 7 feet.
 20453. Q Would it not run up to 10 feet? A Yes, it used to run up to 10 or 12 feet in thickness.
 20454. Q Do you know of any large falls in it? A Yes.
 20455. Q Did you ever know of any damage done by them? A I know of the blowing out of stoppings, the blowing down of doors, and the spouting of slips. I do not know of anyone being killed.
 20456. Q Is all anyone injured? A Not in a great extent.
 20457. Q Did it occur to you that the area of roof standing in the 14th Right was in any material extent different from your experience in the British collieries? A No, there was nothing there, I think, anything different from what I have seen before.
 20458. Q Then this area of standing or hanging roof did not give you any cause for alarm? A No; I never thought about it being dangerous.
 20459. Q It did not occur to you, that it was in any way different from what you had had experience of before? A Nothing that I thought about.
 20460. Q Did the area seem to be exceptional? A Well, it was a big area.
 20461. Q Were you not at Brynha found roofs standing over an equally large area? A Yes, but there might be more stoppings going into it than here.
 20462. Q The Mine and mine was a gassy one? A Yes, and so was the Bancy and the Cneak coal mine.
 20463. Q Then, if you had not had trouble with roofs before in gassy mines, you could not expect that a fall in the 14th Right was likely to bring about a disaster of this nature? A No; I had no suspicion at all that it would do so.
 20464. Q If you had any idea that gas was to be found in the 14th Right, would you have taken particular pains to have had an examination made? A Yes.
 20465. Q Would you, at the risk of your life, have done so? A Yes, I would.
 20466. Q If you knew of the existence of gas in any quantity, would you have allowed naked lights in the vicinity? A No, I would not have felt myself safe. I would not have allowed naked lights to go near gas, either in the mines or the surface.
 20467. Q Your own life was at stake? A Yes.
 20468. Q You lost an adopted son? A Yes, I did.
 20469. Q And you still think that the Kneble and given off no gas? A I would not say that a given off no gas.

- 26703 Q Do you think it possible that it did give off gas? A I should think it did—a little.
- 26704 Q What quantity do you think has ever been given off—by any serious extent? A I do not think that.
- 26705 Q You admit that, previous to the new furnace being put into operation, gas was being given off? A I saw gas in Kentucky before the furnace was built, but not in large quantities.
- 26706 Q The construction of a new furnace would not have any other effect than to disperse the gas around? A Yes, it would it give more air.
- 26707 Q But it could not prevent the escape of the gas, if the gas is in the road? A No, I do not say that.
- 26708 Q Is it not possible that there may have been an escape of gas that could not have been detected in the ordinary way with the ordinary safety lamp? A It is possible it could have been detected with the ordinary safety lamp.
- 26709 Q Was any test ever made with the hydrogen lamp previous to the disaster? A No, not to my knowledge.
- 26710 Q Do you remember being out of a party who accompanied Mr. Atkinson, Mr. McGowan, Mr. Hamble, and myself, and going into the 11th Right on the 26th of August? A I remember being there.
- 26711 Q Do you remember that I brought under the notice of the party avoidance of being going into the 10th Right? A Yes.
- 26712 Q Did you notice several props leaning against half braked in shock? A I could not say that I noticed them, but I remember seeing many attempts to timber piled one top of another. I thought it was a shock. You asked me what I thought of it. I said that it looked as though the force had been blowing in by.
- 26713 Q Did I not call your attention to three props, braked halfway up in shock, with the heads leaning against? A This might, but I do not remember it. I remember well about the shock.
- 26714 Q There is evidence that I did—over Mr. McFadden admits it, for one? A I cannot say you did.
- 26715 Q Do you remember your attention having been called to a large stone? A Yes.
- 26716 Q Which apparently had been driven down? Do you not remember that this stone was located in a point on the back heading from where it had fallen? A I remember one person saying it came from the 10th Right, and others said it came from somewhere else. I thought we could not find the place where the stone had fallen from.
- 26717 Q I thought we did? A I thought we did not.
- 26718 Q What was the condition of the 10th Right with respect to dampness? A It was damp, water was running out of it.
- 26719 Q It was pretty damp? A It is—so pretty damp.
- 26720 Q There was no dust there? A I would not say no dust. There might be a little. It was damp, and water was running out. Water was running out of the 10th Right too. We have had pipes run into the 10th Right to take the water away by gravitation.
- 26721 Q Now, it has been suggested that, when the roof is hanging, after the timber has been withdrawn, the men should be withdrawn. Would it be possible to work safely if that were given effect to? A No, you would often leave the whole of the colliery stopped.
- 26722 Q Is it not the custom for a considerable portion of the roof to hang after the props are withdrawn? A Yes, in my experience I have seen it often.
- 26723 Q And possibly if no more were taken, by working away more coal, the roof might hang to such a position for years? A It might.
- 26724 Q Therefore, if the mine were withdrawn when the roof hangs, do you think colliery operations would be seriously interfered with? A I can take you to a place where the roof has been standing over a fairly long time for 8 or 10 years.
- 26725 Q And, if the men had been withdrawn until that roof fell, that action would have been at a considerable height or great pace? A Yes.
- 26726 Q You have never known any serious results to follow from men working in the vicinity of a hanging roof? A Never.
- 26727 Q If the roof is hanging after the timber has been withdrawn, is there any possibility of bringing it down except by working more coal away? A That is all. That is the only way I know of—by making a bigger area, and letting it all fall at once.
- 26728 Q Did you ever know a fall, in your experience, do anything like the damage you suggest has been done by this one? A No.
- 26729 Q If you had been asked before the disaster of a fall from a large area could cause such a blast of air as to bend men probers, and to work destruction throughout a large mine, would you have admitted it? A No.
- 26730 Q Do you seriously think now, as a practical man, that a blast from this large fall did all this damage? A I cannot say anything else for it.
- 26731 Q Well, if there was a force coming out of the 10th Right sufficient to do that damage on No. 1 main road would not that force have swept away every check in the mouth of the 10th Right and every piece of timber? A Well, yes.
- 26732 Q Would you expect to find anything left? A No.
- 26733 Q Would you expect to find any small coal in the 10th Right? A I would not expect to find any small coal left.
- 26734 Q When it reached the back heading the force would divide, would it not? A Yes.
- 26735 Q It would divide into three? A At the corner.
- 26736 Q If you have 700 miles an hour to start with, it would then be 350 miles an hour or thereabouts? A I suppose about that.
- 26737 Q And, when the force reached the same heading, it would divide again into two? A Yes.
- 26738 Q That would give a force of nearly 150 miles an hour? A Yes.
- 26739 Q Do you think that a force of 150 miles an hour would bend iron lines and work all this destruction? A I do not think that would be enough.
- 26740 Q Did I understand you to say that there had been no burning? A I saw very little burning.
- 26741 Q You saw dust raised? A Yes, I did.

Witness—Mr. Rogers, 11 March, 1903.

- 26741 Q And location of the back leading hatch? A Well, you, it was as though it had been lashed—I would not say that it had been lashed.
 26742 Q It was not there—it had been lashed away? A Either lashed away or blown away.
 26743 Q And the last one in Affleck's place also? A It was blown away.
 26744 Q Do you remember seeing Morrison's leg, and Nixon's body? A I saw Morrison's leg.
 26745 Q Do you think he was lashed? A He had mud and dirt sticking into him by the throat.
 26746 Q You remember a lamp on the top of the 4th Left? A Yes.
 26747 Q Was the lamp of the lamp stand? A I did not see it.
 26748 Q Did you see Tom Perrell? A Yes.
 26749 Q Was he lashed? A His hair was singed.
 26750 Q And young Roberts? A Yes.
 26751 Q Had he any hair on? A I could not say, he was covered all over with mud-dirt; I could not say whether he was singed or not. I do not think his body was lashed.
 26752 Q Do you remember, when the Commissioners visited the mine—was the incident of that pipe mentioned to them? A No, I do not think it was.
 26753 Q Is it true before then? A No; I think it was after the Commissioners were in the mine.

Examined by Mr. Hilditch:—

- 26754 Q How far is the jig from the face of No. 1 main heading? A About 60 yards.
 26755 Q Later in this entry in the diary again—on the 11th of July, 1902:—

Entered the mine at 6 a.m. and walked No. 1 Right-hand heading in company with Deputy Engineer, and measured for length of new roadway and arranged for leading places for engines and laid the top of entries and legs and set in. Went to the first pillar in the 4th Left and in a few places in the 4th Left, and in where there was work in the 3 Right Division. Found everything all right, and came outside at 3.3 p.m.

A. That says No. 1

- 26756 Q Do you put that before the Commission as being the result of an examination of the main heading? A I take it that he was up at the heading face that day.
 26757 Q Is there anything in this report which I have read—look at it—to show that? A We were making a jig there, and he was arranging about the rope. We went for general purposes.
 26758 Q Did he go for general purposes, or for one purpose? A No, not for one purpose, for the ropes, and about a wheel.
 26759 Q Can you account for that report not being signed by anyone? A I saw that it was not signed; but it has been written by Nelson.
 26760 Q There is no signature? A I signed that before.
 26761 Q Do I understand you to say that, after the furnace had been erected, there was no need to draw any gas, and that you had not seen it? A Yes after the furnace had been erected.
 26762 Q How do you account for the burning of Gallagher after the furnace had been erected? A Gallagher broke into some old heading.
 26763 Q Does that not indicate that the paid gas off gas? A I need before that the coal gave off gas.
 26764 Q In drawing into old headings, what precautions would you take? A I would put bars in front.
 26765 Q Have you had occasion to draw into any headings like that one since you have been Manager? A No.
 26766 Q Gallagher was blown by gas after the new furnace had been erected? A Yes, I believe with gas.
 (The Commission, at 4 p.m., adjourned until 10 o'clock the following morning.)

THURSDAY, 12 MARCH, 1903.

[The Commission met at the Supreme Court, King's-street, Sydney.]

Present:—

C. E. R. MURRAY, Esq., D.C.J. (PRESIDENT).

D. A. W. ROBERTSON, Esq., COMMISSIONER. | D. RITCHIE, Esq., COMMISSIONER.

Mr Bruce Smith, Barrister-at-Law, instructed by Mr. Wood, Crown Solicitor's Office, appeared on behalf of the Crown.

Mr A. A. Atkinson, Chief Inspector of Coalminers, assisted Mr. Bruce Smith.

Mr A. J. Loughlin, Solicitor, appeared on behalf of:—

- (a) the representatives of deceased miners, widows, &c. (relatives of the explosion);
- (b) the employees of the Mount Kembla Colliery (miners, wharfmen, &c.); and
- (c) the Mount Kembla Colliery Employees' Association (the Southern Mines' Union).

Mr D. G. Wade, Barrister-at-Law, instructed by Messrs. Cyprian and Barry, Solicitors, was present on behalf of the Mount Kembla Coal and Oil Company (Proprietors of the Mount Kembla Mine).

(Mr. J. Garbutt, Secretary to the Commission, was present to take shorthand notes of the evidence and proceedings.)

Mr. W. HUMBLE was sworn and examined, as under:—

(This witness was called by the Commission, who asked Mr Bruce Smith to conduct the examination-in-chief as a matter of convenience.)

Mr Bruce Smith asked whether the Commission desired that Mr Humble should be examined upon a whole and particular of the inquiry. The President replied that they did.]

Examination in-chief by Mr Bruce Smith:—

- 26768 Q What is your name? A William Humble.
 26769 Q What are you? A An Inspector of Collieries.
 26770 Q For what? A Principally for the Southern District.

26771.

- 26771 Q What is the extent of your experience? A Thirty-five years (interposed).
- 26772 Q That is, since you were first connected in any way with coalmining? A Yes. I commenced as a boy of 12, and I am now 47 or 48 years older than that.
- 26773 Q In what positions have you been, during those thirty-five years? A I have held every official position. When I was a boy, I worked on my father's work. From that I became a deputy when I was 20 years of age, and I have been an official ever since.
- 26774 Q Where has your experience been obtained? A Principally in the north of England, in Durham, and the last fourteen years here.
- 26775 Q What was the highest position that you occupied in England? A Assistant Manager.
- 26776 Q Of large mines? A Yes, fairly large.
- 26777 Q You might name them? A The Adelaide Colliery, and part of the St Helen's Colliery, owned by Furness and partners, the Quakers.
- 26778 Q Now, had you any knowledge of this Mount Kemble Mine before this disaster in July? A Yes, I made one inspection at the Mount Kemble Mine in 1890.
- 26779 Q In your capacity as an Inspector? A Yes.
- 26780 Q On the 1st of August, I think, you had a telegram from the Chief Inspector—the morning after the disaster at Mount Kemble? A Yes.
- 26781 Q And you went to the mine at once, and arrived there at noon on the 2nd? A Yes.
- 26782 Q And I think at about 4 o'clock on that afternoon you went into the mine with Mr. Atkinson, Mr. Morchard, Mr. Barr, and two deputies? A I do.
- 26783 Q You went, I think, straight into what they call the No. 1 shaft? A Yes.
- 26784 Q In search of bodies, or that sort? A In search of the bodies—Stafford and Newman.
- 26785 Q What caused you to go particularly in search of those two bodies? A Well, for the time being they were lost. The rest, with the exception of those, had all been recovered. Those two men could not be found.
- 26786 Q You found them? A Yes, we found them.
- 26787 Q In the back heading off Stafford's Flat? A Yes.
- 26788 Q And I think the positions are marked on Mr. Atkinson's plan? A Yes.
- 26789 Q What impression did you form from the place and position in which you found them? A Well, I concluded that they had come out of their working-place and had met the other party in coming along the gang road, and had turned through a cut-through and gone into the back head, where they fell.
- 26790 Q I think there were no marks of violence or injury of any kind upon them? A No. The bodies were then decomposing, but there were no marks of violence so far as I could see.
- 26791 Q Did you make any test there for gas? A Yes, we made several tests in that vicinity, and got small quantities. I think it was near we got 1 per cent.
- 26792 Q Was this at that time? A Yes, during that inspection.
- 26793 Q What did you find? A We found 1 per cent in one place—in Stafford's place—and a 1 per cent in another one.
- 26794 Q That was with the hydrogen lamp? A Of course, with the hydrogen lamp.
- 26795 Q Mr. Moore? Q At that time, in what state was the ventilation? A Well, with the afterdamp had been removed, the ventilation was all away—all disarranged, the stoppings were out.
- 26796 Q Mr. Moore Rankin? Q That is, at the time you found the gas? A Yes.
- 26797 Q Mr. Moore? Q The furnace was going? A Yes, I understood it. I did not see the furnace until several days afterwards.
- 26798 Q Mr. Moore Rankin? Q Those two men had been working together? A Yes, I was told that they were mates.
- 26799 Q Did you find them some distance apart? A Oh, yes; they were some 30 yards apart.
- 26800 Q Well, that is about all you did on that first visit? A Yes, I think so. Well, we visited other places, I think, but I have not any clear recollection of those circumstances. That was my first visit.
- 26801 Q Now, on the 4th of August—that is, the next day—you went in again with Mr. Atkinson, Mr. Barr, Mr. Morchard, and Mr. Littlejohn? A Yes.
- 26802 Q And you then went into the right-hand side of No. 1, via the 5th Right? A Went down the main travelling road to the 5th Right, and then worked through the 5th Right, right on to those first right-hand places.
- 26803 Q Where all those people were used? A Yes. [Moving the circumstantial heading up and read distinct.]
- 26804 Q Did you find gas there? A No; we found no gas until we got into the face of the first right-hand headings.
- 26805 Q That is really the face of the main heading? A Of the main heading.
- 26806 Q Back and forth? A Yes.
- 26807 Q What did you find there? A Mr. Littlejohn and I examined the roof edges, as we went along that lower 5th Right, and we found no gas, but I think we came to some places before we came to the first right-hand headings— [Interposed.]
- 26808 Q Can you locate them? Where they before you came to March's place? A Yes, I think I can locate them as we go along.
- 26809 Q Well, you tell us the first place you came to? A
- 26810 Q Mr. Robinson? I think it would be better to try and place them as the map.
- 26811 Q Mr. Moore? Q You have seen a plan of the mine? A I have, Your Honor.
- 26812 Q Mr. Robinson? Q Past where with the pencil on the plan where you started? A We came down here, there is a 5th Right here [pointing to the shaft descent].
- 26813 Q Mr. Moore Rankin? Q That is No. 5 Right? A That is No. 5 Right. We worked all along here (No. 5 Right). Mr. Littlejohn and I tested for gas in this road (the 5th Right).
- 26814 Q In the 5th Right, to the left of No. 5 Right? A Yes.
- 26815 Q Did you find anything there? A No, it was quite clear.
- 26816 Q Here? A We worked all the way along the No. 5 Right.
- 26817 Q Up to where? A Past Powell's Flat.
- 26818 Q And up to Peter's Flat? A And up to Price's Flat.
- 26819 Q Did you find anything there? A No, no gas, we found several other things, but no gas.
- 26820 Q What did you find? A Two or three small bars.

Witness: W. Hewitt, 21 March, 1905.

20022. Q From there? A From there we worked all the way up into Stafford's place again. That was on the Monday. There was a test made for gas in Stafford's place.

20023. Q Did you find anything? A Three-quarters per cent. air notes here there—three-quarters per cent. in Stafford's place.

20024. Q No more? Q Is that the same place that you went on to on the first? A Yes.

20025. Mr. Bruce Smith. Q Do you think the gas of the previous day had been carried off by the wind here? A No; I think simply that that was the approximate amount of gas in the atmosphere.

20026. Mr. Bruce. Q How far from the roof was it? A It was so near the roof as we could get the lams, and in the fact.

20027. Mr. Robertson. Q Then that would not be the approximate amount in the atmosphere, unless you could get the three-quarters per cent. lower down? A Well, we did get just lower down; but I think it is very likely that, if we had, we would have got the same, seeing that there was no current of air flowing at that time.

20028. Mr. Bruce Smith. Q That is your impression, that the air all about that particular part of the mine —? A Was stagnant, and I think that that was about the nature.

20029. Q Well? A We made further tests at the edges of that small pool, the three-quarters were good between Stafford's going head and G's going back, and we got 1 per cent.

20030. Q On the edge? A On the edge, around first above the seam.

20031. Q Was there a horse round that? A No.

20032. Q Several feet above the seam? A Yes.

20033. Q Where the fall had taken place? A Yes; we climbed up around first above the seam on the fall, to test.

20034. Q From there? A We went to No. 80 pillar. Six feet above the seam there we got three-quarters per cent.

20035. Q You are still on the 4th of August? A Yes.

20036. Q Well? A With the ordinary flame of the safety lamp, the top end of this pool showed no gas.

20037. Q Well? A From there we worked all the way along these faces, from Stafford's going head to G's going back, and from there on to the first right-hand headings (No. 1 main level headings).

20038. Q On to the headings of the No. 1? A Yes, we came along here.

20039. Q Along the cut-throughs? A Along the cut-throughs to the No. 1.

20040. Q Were far did you go up there? A We worked along here, and went right to the face, so, we did not, we went to about eight or ten feet of the last cut-through (the last cut-through between the No. 1 head and back headings).

20041. Q The last cut-through to the west, that is to the left, of the No. 1? A The last cut-through between the two No. 1 places.

20042. Q What did you do there? A We stopped; we found that our lamps were full of gas; and we stopped, and came back for a certain distance.

20043. Mr. Bruce. Q Your lamps were full of what? A Full of fire-damp.

20044. Mr. Bruce Smith. Q What lamps? A The safety-lamps we carried.

20045. Q How far did you come back? A We came back some six or eight yards down below the cut-through, and those lamps.

20046. Mr. Bruce. Q South of the cut-through? A There is the last cut-through (passing), we came down, maybe, 15 or 20 yards below that cut-through.

20047. Mr. Bruce Smith. Q Outside of the last cut-through? A Yes, outside of the last cut-through.

20048. Mr. Bruce. Q It would probably be very convenient to have a word (from that No. 1 main heading) here due north and south, and so you can be proved very easily by compass bearings?

A Yes, Your Honor. Well, we worked north.

20049. Mr. Bruce Smith. Q To that point which you have described? A Yes.

20050. Q What did you do there? A We tested for gas with our lamps. Finding none, we went to work again.

20051. Q Feeling none with the safety? A Finding none with the ordinary flame of the safety lamp, we moved on; we again and we got about 4 yards on the north side of this last cut-through, and there we found that we got the full-end of the gas.

20052. Q From which you infer that it circulated right to the face? A Yes, so the places were doing, we inferred that they were full of fire-damp.

20053. Q Can you give us an idea of what quantity you ascertained to be there? A Yes. After allowing for the difference between the two faces was a straight well up and down, it took out, maybe three — after allowing for that, we estimated that there were 30,000 cubic feet.

20054. Mr. Robertson. Q That was of explosive mixture? A That was an explosive mixture.

20055. Mr. Bruce Smith. Q Not pure gas? A No, not pure fire-damp, certainly not, but gas, as we speak of gas in the mine.

20056. Q You could not, of course, ascertain what percentage? A No; it would be fairly large, that is of the proper proportion of air was there.

20057. Mr. Bruce. Q Getting richer as it got higher and further on? A Yes.

20058. Mr. Bruce Smith. Q Well, I think while you were there, you were joined by Dr. Robertson's party? A Yes.

20059. Q Who were present on that occasion, roughly? A Dr. Robertson, Jerry Jones, George Carter, John Johnson, Thomas Cook. I do not remember any more.

20060. Q What did you do about it, did you show them the gas? A Yes, I showed Dr. Robertson the gas on my lamp.

20061. Q Did he dispute those indications of gas? A No, he did not.

20062. Q Did you express any opinion to him as to the probable quantity? A No, I think not.

20063. Q I suppose the impression you have drawn as to the quantity is one that anybody else would draw? A Well, I think so. It is inferred from circumstances.

20064. Q That is what I say, it is not from any fancy of your own as to measurements, or anything of that sort? A No, we afterwards were able to get into those places, and we measured them, and took the length, width, and height.

20342. Q Did Dr. Robertson express any doubts as to whether it was gas? A No.
20343. Q Or as to the extent of it, as stated by you at that time? A No, nothing of the kind.
20344. Q Did you have any discussion with him, or with any of his members of his party, as to where this had come from? A No, I think not. I do not remember it.
20345. Q Further, I think you went on to the site of that fire? A Yes.
20346. Q Did you have an opinion as to what that inflammable mixture was? A That we found there?
20347. Q Yes? A Yes, I came to the conclusion that it was fre-damp. There was no question about it, it was fre-damp.
20348. Q Now, then, it was quite common, I suppose? A Well, there was a slight smell with it, but I think that, in common generally, it is always accompanied by a smell of mine head.
20349. Q Mr. Bruce Smith? Q Was there anything about it in fact you to suppose that it differed in any way from the ordinary fre-damp? A Nothing whatever. I might explain to your Honor that, generally speaking, whenever we had fre-damp in a mine it has some smell about it.
20350. Q Now, then? Q Another gas mixed with it? A Yes.
20351. Q What sort of smell? A Well, I could scarcely describe it. We called it a nasty smell.
20352. Q Anything like the smell of ordinary dampening gas? A Yes, pretty much like it.
20353. Q Mr. Robertson? Q Is not the smell of ordinary dampening gas a sulphur smell? A Yes, I suppose it is a sulphur smell.
20354. Q And is not the odor of fre-damp, when it is found, rather pleasant, if anything? A Well, I have not found it so.
20355. Q Mr. Bruce Smith? A Well, that is a matter of taste.
20356. Q Mr. Robertson? A As a matter of fact, it is so.
20357. Q Witness? It may be pleasant to some palates.
20358. Q Mr. Robertson? But, as a matter of fact—I do not say personally—in a pleasant.
20359. Q Mr. Bruce Smith? Perhaps Mr. Robertson, you mean otherwise, like the smell of gas.
20360. Q Mr. Robertson? No, sir, taking apart, I am sure you can find fre-damp that has quite a pleasant smell, not due to the fre-damp, but to some other gas.
20361. Q Mr. Bruce? Q There are two distinct sets of smells which you might expect to get. One set of smells is purely the smell of various hydrocarbon compounds, which all the liquid hydrocarbons have in various forms, and the other set of smells is that of sulphur compounds, which is somewhat similar in most of the compounds of sulphur, although of course it varies from the smell of rotten eggs to that of matches? A Yes. I would be inclined to agree with Mr. Robertson that there is a sulphur smell about fre-damp generally.
20362. Q Mr. Robertson? I did not say that. I said that the smell of dampening gas would be a sulphur smell. I said that the smell of fre-damp could be either pleasant or otherwise. It would be something like this:—The fre-damp that I have been dealing with for some years was something like the following:
20363. Q Witness? You have a peculiar kind of fre-damp in your district?
20364. Q Mr. Bruce Smith? Q Then what do you say about the suggestion that that inflammable mixture which you found was the result of distillation? A I say it is highly probable.
20365. Q Did you notice any difference between the smell of that and the smell of the fre-damp that you have met with in other mines? A No, sir, just the same smell.
20366. Q I mean between that and the smell of fre-damp which has been produced in the ordinary way in the mine without any fire at all? A Yes, I think, if it was the result of distillation, there would have been some of the gas mixed with it that would have been easily detected by the smell.
20367. Q Mr. Robertson? Q There would be the odor, probably of the match? A Yes, it would be there.
20368. Q Which is quite distinct and unmistakable? A An unmistakable smell.
20369. Q Mr. Bruce Smith? Q And there was none of that? A No.
20370. Q And, if you had not found that there had been no explosion, or, in any way still, no accident, at that mine, you would have detected something about the fre-damp in differentiating it from any other? A Nothing whatever, I could have looked upon it, as I did such upon it, as ordinary fre-damp.
20371. Q And you suppose that appears in the presence of Dr. Robertson and his companions? A Yes, I think so. I suppose I asked Dr. Robertson to look at our lamp and see the fre-damp that we called into a bottle before they came.
20372. Q And you treated it in no way for some? A Yes.
20373. Q And another lot, one lot of compounds, took any exception to it? A No, none whatever.
20374. Q Did you have any suggestion made that it was a mixture coming from the distillation of coal-dust? A No, I think that suggestion was not here until a little afterwards.
20375. Q You went on to the fire did you not (read by 30)? A Yes.
20376. Q What did you see at that fire? A We found some bottles, the remains of bottles, sundry iron fittings, we found some ripped paper, and we noticed that the feet of one of the groups were all burnt and charred.
20377. Q And those were quite close to the fire? A They were part of the fire.
20378. Q They were actually part of the fire? A Yes.
20379. Q Was there any heap of refuse at that time indicating the position of the fire? A No, there was a large pile of refuse, but there was distinctly not a heap. There had evidently been very little stuff to burn, and I do not suppose it was more than a couple of inches deep in the deepest part of it. I know I poked about, and slipped my hand into it, and it did not appear to be more than 2 or 3 inches deep.
20380. Q Do you think it is possible that an ordinary wooden pipe was amongst those ashes, and that you did not feel it? A Well, it is possible.
20381. Q Do you think that is probable? A No, I do not think it is probable.
20382. Q You mean that, if there was anything in the ashes, you would feel it with your fingers that you passed through them? A Yes, I think so.
20383. Q Mr. Wade? It has not been suggested that the pipe was in the fire.
20384. Q Mr. Bruce Smith? I understood that it was in looking the ashes of that fire on one side that the pipe was found.

Witness: W. Riddle, 11 March, 1933.

20026 *Mr. Wade* [The witness is that there was no more there and when, and, looking around that, they found the pipe. It is clear that that pipe was not in the line itself. It is not here.]

20026 *Mr. Bruce Smith* [Q You told us of the corner and the pipe—that was about an inch or two deep. I think you said? A A couple of inches deep.

20027 Q And spread in a circle rather than a loop? A A circle of more or 4 or 5 or 6 feet in diameter.

20028 Q And you passed your hand through the whole of that? A Not the whole of it, but I certainly examined with my hand the central part.

20029 Q Was the corner over the top of it? No. The corner had been burnt, and this was the center from the corner.

20030 Q Then there was no corner in your way to interfere with your examination of these pipes? A Yes. There takes more time to look a while about trying on the floor.

20031 Q What was your object in putting your hand through it? A Merely curiosity. To find the texture of the ash, I think, was one object I must have had, the other would be curiosity.

20032 Q Did you find the ash fine? A Very fine.

20033 Q And you did not come across anything? A No, I did not find anything.

20034 Q Then you will go to the extent, you will say that it is improbable that you would have found an ordinary wooden pipe, if it had been there? A Yes, I think so. It is improbable.

20035 Q Then you picked up some slanted pieces of paper? A Yes.

20036 Q They did not show any light on anything? A No.

20037 Q They were lunch papers? A Yes, something like that. I brought them out of the room, and we had a look at them, and there was nothing particular about them, except that they were slanted, and we threw them away.

20038 Q Could you say anything about that fire to suggest, to state? A No, it was off the back of your head, and therefore, as people would be likely to go down there. It appeared to me to be simply the result of the explosion, the result of the flame that had travelled along and set fire to some bracket—a fire on the floor.

20039 Q You came to the conclusion, you say, that it was what? A That it had been the result of flame, of course, that flame being present as the result of the explosion.

20040 Q That is the conclusion you came to? A Yes.

20041 Q And you saw nothing whatever, around it, or about it, or in connection with it in any way, to make you doubt that that is how it came about? A No, I saw nothing.

20042 Q Then you met Dr. Robertson's party again? A Yes.

20043 Q On the 10th? Right? A On the travelling road, at the entrance to the 4th Right.

20044 *Mr. Robertson* [Q Was that before or after you visited this place? A After, about 2 o'clock at night, as we were making out.

20045 *Mr. Bruce Smith* [Q You made a test at the roof edge on the 4th Right? A Well, after I got out of the party; I was present, and saw what was there.

20046 Q You saw a test made? A Yes.

20047 Q And you found no gas there with the safety-lamp? A No.

20048 Q But Mr. McGowan found some with the hydrogen lamp? A Mr. McGowan found some with the hydrogen lamp; that I was I got past.

20049 *Mr. Robertson* [Q That was at the 4th Right? A Yes, that is the 4th Right—[travelling from railway street of mine]—Found some with ordinary flame, but Mr. McGowan found I got past, with hydrogen lamp.

20050 *Mr. Bruce Smith* [Q I want to be quite clear, that is, at the edge of the roof on the 4th Right? A Yes.

20051 Q Were you on the 4th Right at the time? A Yes, we went up from the travelling road to the edge of the hill purposely to test.

20052 Q That is, right in line? A Yes, we came up from the travelling road to this point, and tested at the hill.

20053 Q What was that that you found? A Well, it showed us one quite clearly, with the hydrogen flame, that it was the lamp.

20054 Q Where did you find that? That is to say, at what part? A Well, we came up on to the hill, and, I suppose, we would be perhaps 2 or 3 feet above the roof of the room. The lamp would be about 2 or 3 feet higher in the roof.

20055 Q At the time the man detected? A Yes.

20056 Q Did you see Mr. Atkinson make a note at that time? A I do not remember. I suppose he did, because I saw him make notes very frequently.

20057 Q You did not see the note, to check it at the time?

20058 *Mr. Wade* [This is the first time we have heard of the lamp being found on the 4th Right. Mr. McGowan was never asked about it.

20059 *Mr. Bruce Smith* [Q I want you to be very careful, just look at your other notes—have you any doubt whatever about this about your finding or seeing Mr. McGowan find the I got past, up on the edge of the roof on the 4th Right? A I have no doubt whatever. I was close to him, and saw him see the lamp, and saw the result he got.

20060 Q And he got up on the screen, you say, 2 or 3 feet? A Yes, and I climbed up after him.

20061 *Mr. Robertson* [Q Do you remember being above with me about the 4th of August? A Yes, I do.

20062 Q Do you remember making a test? A Yes, I do.

20063 Q Could you get anything there? A Well, I will tell you—I think I got nothing that day. It was on the 9th of August.

20064 Q Do you remember—we went up together? A Yes, I do, and I must have got it somewhere before—[referring to the note]. I remember making a note of it. [Reading] "Tested for gas on 4th Right (just edge, and got I got past." I have got here.

20065 Q At 10 minutes, I got past, is very late? A Yes.

20066 Q And two minutes? A One minute up "Nothing", and the other might say "I—I am quite prepared to admit that.

20067 *Mr. Bruce Smith* [Q Was Mr. Atkinson with you at that time? A Yes.

- 20341 Q Did Mr. Atkinson go up with you at all? A I do not remember, I think not, I think there would only be two, Mr. Robertson and I.
- 20342 Q You are speaking now of McGowan and yourself? A No, I was speaking of myself and Mr. Robertson.
- 20343 Q I want you to go back again. Mr. Atkinson has not given evidence of that, and I want you to be particular about it. I want to know whether you went up alone or in the store? A Well, I am almost certain Mr. Atkinson was down below, because he had the electric lamp, and we put on our hydropane shoes long before we got to the point of taking, because we thought that the atmosphere was rather subjective in going up to the place, and Mr. Atkinson followed us up very closely, to give us light.
- 20344 Q Do you mean up to the store? A No, up to the edge of the store, I do not suppose there was room for three people on the stairs; but he was close by, I think.
- 20345 Q Well, when you had found them 1 per cent of gas, did you report it when you came down to the store? A Yes, I would be spoken of.
- 20346 Q How you came of that? A I cannot answer it, because I have not it in my notes.
- 20347 Q I mean, if Mr. Atkinson does not remember that — (interrupted).
- 20348 Mr. Wolfe [That is not the way to put it. Ask him if he spoke of it.
- 20349 Mr. Bruce Smith] Q Did you speak? A I am certain we would speak of it to some of the party, and there would be no one more likely to be told than Mr. Atkinson.
- 20350 Q You are quite certain you saw it? A Yes.
- 20351 Q And McGowan saw it too? A Yes, McGowan was handling the lamp.
- 20352 Q Who made a note of that? A I made a note of it immediately we came out into the road.
- 20353 Q Did McGowan make a note of it? A That I cannot tell you. I am inclined to think he did not.
- 20354 Q What did you do then? A Well, I think we went out along the traveling road, and looked the shaft for that day.
- 20355 Q I think you and Mr. Lettbridge examined some other place off No. 1 Right? A Yes, I have already told you.
- 20356 Q That was the same day? A Yes. We are speaking now of the Monday, well, it was on the Monday when Mr. Lettbridge and I examined the gas edge.
- 20357 Q When it was a little out of water. Tell me what you did after that; you came out there, did not you? You are you have not got your notes numbered in pages? A They are a little bit mixed.
- 20358 Mr. Wolfe [It is only a convenience that you are allowed to use them at all. Nobody else has been allowed to use them.
- 20359 Mr. Bruce Smith] Q Does your Honor notice that remark? How can a man remember all these things without notes? A I am taking notes of all these things as a man cannot remember them all. Every other witness who has taken notes has been allowed to use them.
- 20360 Mr. Bruce Smith] Q Go on to the next one? A Wednesday morning, 24 August. A party of us entered by the daylight tunnel, and we moved right away round to a northerly direction and examined those places—I do not know their names.
- 20361 Q The faces at the end of the 2nd Right, 3rd and 4th, and 5th and 6th, and 7th, and 8th, and 9th, and 10th and 11th? A Yes.
- 20362 Q You took a note, I think, of the air that was passing at that time? A Yes, we measured the air, and found it to be 60,000 feet per minute entering the tunnel.
- 20363 Q That is more than the requirements is it not? A For that distance, yes, I should say.
- 20364 Q Well? A Then we travelled northward from these headings.
- 20365 Q Then you took the air in the two levels employing men? A Those two levels and the headings.
- 20366 Q And what did you find there? A We found 4,500 feet of air flowing in these headings.
- 20367 Q That is in the 2nd Right heading, which, with two levels, employed seven men? A Yes; we found 8,000 feet of air there.
- 20368 Q Now, you tested in all the openings between the rope road and the gas edge? A Yes.
- 20369 Q That is on the east side of the 3d rope road? A Yes.
- 20370 Q You found no gas there at all? A No.
- 20371 Q Then you have a mine—the lowest place next No. 1 Right rope road? A That is this place [Pointing to the plan].
- 20372 Q That is on the 3d Right, it is the north-west corner of the 3d rope road? A Yes.
- 20373 Q What did you do? A Yes, I looked for gas there, and found none, but observed slight signs of faces coming from the road into the gas.
- 20374 Q Signs of faces going from the road into the gas? A Yes.
- 20375 Q What were these signs of faces going from the road into the gas? A Drafts of dust chiefly. It was rather dry there, and the dust had been drawn from off the road into the air plane, and was being blown as it drifted up.
- 20376 Q At what level? A On the 3d level, and near the 3d level, and near the 3d level.
- 20377 Q That indicated a face? A Yes.
- 20378 Q From what direction? A From the 3d Right rope road into the gas.
- 20379 Q Not the company direction? A South.
- 20380 Q Did that clearly indicate to you a face going south? A I think so. Whatever force there was there had been going south.
- 20381 Q From the 3d Right, out of the 3d Right? A Yes.
- 20382 Q You tested all the places to the left of the 3d Right rope road? A Yes.
- 20383 Q That is north? A All the places on the rope road.
- 20384 Q At the edge of the gas? A Yes. I tested the gas edge at the same time as Mr. Atkinson was testing those working places, including the working places to the north of the 3d Right.
- 20385 Q You tested all the places on the northern side of the gas, and on the southern side of the 3d Right rope road? A Yes.
- 20386 Q Did you find anything there? A No, we found no gas.

FRANK—T. HAMMIL, 12 March, 1911.

22008. Q What was the next thing you did or observed? A We walked up up into the 1st Right-hand landing, I think. [Mr. Hamill says A's name had been on the last landing.]
22009. Q Follow your sister? A We climbed a door—the door between the two landings through which the table passed in the 1st Right. We observed that the door was open.
22100. Q Which door? A The door here. [Showing of the door.]
22101. Q The door in the 1st Right, between the 1st Right front and back landings? A Yes.
22102. Q You found that open? A Not as yet, now. I beg pardon—my friend that closed it had been open before.
22103. Mr. Robertson. Q It had been open before? A It was open on the Monday, but it was closed then, on the Wednesday.
22104. Q That had been left open, I believe —? A To get some air for the nurses work, as I was informed.
22105. Mr. Bruce Smith. Q Yes. Then you found a door on the back landing? A Yes.
22106. Q It was open then? A Yes.
22107. Q And it was partly destroyed, — can you point that out? A This door here. [The door on the back landing, edge of the 1st Right.]
22108. Q What condition did you find that in? A Well, the table had been built of mine-stone, more debris, and this had been there out.
22109. Q What was it? A Oh yes, there was again.
22110. Mr. Bruce Smith. Q Was that building built with clay or mortar, or anything for mortar, or was it only the dry stones? A Just the dry stones, it appeared to be. I did not see any sign of mortar.
22111. Q You could easily see if there had been? A Yes. It was just the dry stones.
22112. Mr. Bruce Smith. Q Did the direction in which the material of that door had been thrown correspond with the direction of the last which you saw thrown into the north-west corner of the 1st floor? A Yes, the same direction.
22113. Q How had that door opened originally? A It had opened to the south, and closed to the north, I think.
22114. Q When you are sure of it, do not say? A I would not be certain.
22115. Q What do you think? A Well, seeing that the 1st Right, where it opened the back landing, was a corner, I should think that that door would have closed to the north and opened to the north.
22116. Q That is just your opinion of what it ought to do? A Yes.
22117. Mr. Bruce Smith. Q Well, what is right to do is probably what it would have done, as the stone was worked on reasonable principles, and, therefore, if Mr. Hamill can say that, under certain conditions of ventilation, that door should open in a certain way, it probably did open that way.
22118. Mr. Bruce Smith. Q I would suggest to you that that is just a position where, unless you know, it is a very hard to say which way the door would open? A Yes, that is very difficult. Considering that Horne's place was the first place in the right, I think that this door was put there to prevent the air going down that street, and, therefore, that it opened to the north and closed to the south.
22119. Mr. Robertson. I think I did hear it and that the condition in that particular part was not in the usual way, and did not follow the usual course, and I think that the door was placed in the opposite way to what it would usually be put.
22120. Mr. Bruce Smith. I will leave that, as there is a dispute — as you say, and Mr. Atkinson says, that that is a position in which there would be some doubt as to which way the door would open.
22121. Q At all events, the material was blown south? A Yes.
22122. Q Indirectly blown from the north? A Yes.
22123. Q Yes, you did not see the bodies of Alice and her son, did you? A No, I did not.
22124. Q But, from what you know now of the position in which they were found, could you say in what direction they were —? A They were found, to the west of their working place; they had evidently been carried by the blast west of their working place.
22125. Q Did you see the bodies, to judge whether they had walked there or been blown there? A No.
22126. Q Then you cannot express an opinion? A No, but I saw the two holes they had been lying, and they were clearly blown to the west.
22127. Mr. Robertson. Q Was not where their bodies were found a place thickly supported with props? A Well, there were a few props, but there was quite sufficient cover for my man to get in.
22128. Q Do you think that Alice and her son would have been blown on their stomachs being supported? A Well, it all depends where they were found. I do not think they were found any distance down the road. They were simply found close to the top of the wall, and close to the side of the body.
22129. Q That is not in accordance with my information. I understood they were blown to the west of a forest of props? A Of course, I cannot say where they were found. [The position in which the bodies of Alice and her son were found was pointed out on Mr. Atkinson's plan.]
22130. Mr. Bruce Smith. Q You cannot tell, of your own knowledge, whether they walked there in trying to escape, or whether they were blown there? A No.
22131. Q Had you any idea to say as to the table? A Yes, they were blown down.
22132. Q And in what direction? A They were blown along the landing west; and the inference is that, besides having been blown, they [falling and so] were blown as well.
22133. Q Now, you met with a narrow door, did you not? A Yes, the narrow door was blown in the opposite direction.
22134. Q Just show us where that narrow door was? A I think it was in this east window.
22135. Q How would you describe that? A It would be a narrow door at the head and [rest of the place where Atkinson and son were found].
22136. Q For what purpose? A For turning the air into one of the working levels.
22137. Q Are you able to say what had happened to that narrow door? A It had evidently been blown down; and it was blown in the opposite direction to the other doors along that landing.
22138. Q In what direction was it blown? A That was blown east. The others were blown west.
22139. Q It was a door, not a hanging curtain? A A hanging curtain, yes.
22140. Q Was it blown off there? A Well, the lower part had been taken off, and there seemed to be nothing hanging in the supporting wall. You see these doors are hung by being nailed to a structure.
22141. Q Do you mean to say that this was blown into the wall? A The lower part had been dropped off, just leaving about a few inches over the roof.

- 27046 Q It would not have been blown off because it was not wanted to be used? A No. I think it had been in use at the time of the explosion, but I could not see what took it off, it was some force.
- 27047 Q How could you tell it was blown off? A Because we found the remains, we found the parts to the southeast of where it was found. It was wrapped around the feet of one of those props.
- 27048 Q That is the main thing you came to after carefully examining it? A Yes.
- 27049 Mr. Moore? Q Was it wrapped around in such a way as to indicate how it had struck the prop? A Yes, it had come from the west, and gone east, and struck this prop, and was wrapped around as you would get your arm around a post.
- 27050 Mr. Bruce Smith? Q Then you came to a frame door,—where was the frame door? A The one between those two headings [between the back and front headings of No. 1 in the cut-through opposite the 4th Left].
- 27051 Q What had happened to that? A There had been a very strong force on that door.
- 27052 Q In what direction? A Driving it in an easterly direction.
- 27053 Q Destroyed? A Destroyed.
- 27054 Mr. Hale-Dean? Q Where was you now? A At this distance between the two headings at the 4th Left.
- 27055 Mr. Bruce Smith? Q It was a window door, in the cut-through between the back and front headings of the No. 1, opposite the 4th Left? A Yes.
- 27056 Q You say that was driven to the east? A Yes; and that there was very pronounced, there was no marking.
- 27057 Q That would be produced by a force going up No. 1, and driving? A Yes, going north along No. 1.
- 27058 Q Well, you cannot tell, of course, whether it was a force going up [north] and turning to the right, or whether it was a force coming out [north] and turning to the left? A No.
- 27059 Q But it is quite consistent with a force going up No. 1 [northward] and turning to the right? A Yes.
- 27060 Q That had been blown the opposite way to its opening? A Yes, it had been driven right through the frame, and one post had been forced round through an angle of about 90 degrees—about eight inches—and gone with the door.
- 27061 Q Did you find any dust just there? A Yes, there was dust down on the stone driveway in the door, into the travelling road.
- 27062 Q What did you next observe? A Further along the travelling road, much further out, we came across the further east-end, and another damaged window door.
- 27063 Mr. Anderson? Q The next east would not be in the travelling road? A No, the door was in the travelling road.
- 27064 Q Did you call the over cast? A Oh well, I am a little before my time. The over-cast, of course, is on the main road.
- 27065 Mr. Bruce Smith? Q Where is that? A There had been two doors at one time, the frame of the second door is there, and no door.
- 27066 Q A door frame not in use? A Yes.
- 27067 Q And a door is not? A Yes.
- 27068 Q Well, it is the door in use? A Yes.
- 27069 Q It is the second door edge of the 2nd Right in the travelling road? A Yes.
- 27070 Q What did you see? A The ends of that door were driven out. They consisted of mass debris, the same as the other door that I have spoken of.
- 27071 Q They were all driven in the same direction,—driven out? A Yes.
- 27072 Mr. Anderson? Q Did you notice the door on the 4th Right, or where the door had been? A They were blown down, I think.
- 27073 Q Did you notice whether they were single or double doors? A No, I did not. I saw the remains of one window door, but I could not see whether there were any more, but I certainly saw one.
- 27074 Mr. Moore? Q Well, the overcast, which is close by, was badly injured? A Yes.
- 27075 Q Could you tell in what direction that had been driven? A The remains were driven in a westerly direction, towards the furnace.
- 27076 Q That would be produced by an outflow force, would it not? A Yes.
- 27077 Q I mean a force from the 4th Right outflow? A Yes.
- 27078 Q Well, then, you saw a fall of roof on the 2nd Left side road? A Yes, that was away down here [Debaring].
- 27079 Q About the 2nd Left? A Yes.
- 27080 Q Was that extensive? A It seemed to be about a pillar length—about 30 or 40 yards.
- 27081 Q Was it significant? A No. The mass of it had fallen since the explosion, we could see that by the mass being clean.
- 27082 Q Well, then, you came to two frame doors, but you cannot say anything about the direction? A Yes, they probably were driven towards the furnace, but the forces were not very distinct there.
- 27083 Q You would not express a definite opinion? A No.
- 27084 Mr. Anderson? Q How were these doors?
- 27085 Mr. Bruce Smith? Q Where were these doors? A In the road, somewhere here [indicating on the plan]. I think we went down one of these places, but I do not know which.
- 27086 Q You are not sure of the position? A No.
- 27087 Q Now, a frame door on the 2nd Left, in the back heading,—you saw that destroyed? A Yes; that is the door I am unable to locate now.
- 27088 Q Now you come to Thunders, the 7th of August, when you went in again? A Yes.
- 27089 Q Accompanied by? A Messrs. Atkinson, Wilson, Moorman, Adams Frost, and McQuibben.
- 27090 Q How did you enter that time? A We entered by the main tunnel that morning.
- 27091 Q Travelling down it? A To the first right hand [meaning the No. 1 Right main head].
- 27092 Q What did you enter there? A We entered that the frame had been returned on the tunnel.
- 27093 Q From where? A From the No. 1 Right.
- 27094 Q When you came to the No. 1 you found that all the forces were outflow? A Yes, and also the frame were outflow here.
- 27095 Q Outflow down the junction to the tunnel mouth? A Yes.

Strom—W. B. Smith, 22 March, 1905.

27002. Mr. Robinson? Q Did I understand you to say that the forces at the junction were all easterly?
A From the 4th Right to the junction the forces were all easterly, and also those from the junction out to the tunnel mouth, so far as I could see.
27003. Q Have you anything to say about the mass tumbled below the junction—is this north-west of the junction?
A No, I have not. That is a part of the mass that I was not along. I was not along that road.
27004. Mr. Brown Smith? Q You simply say that from the 5th Right to the tunnel mouth all the forces went easterly?
A Yes.
27005. Q Now, you saw the rail-pieces on the road?
A Yes.
27006. Q They were bent in one direction?
A They were bent in an easterly direction.
27007. Q That is a part of the effects you mentioned?
A Yes.
27008. Q To what extent were they bent?
A Well, they were 8, or 10, or 12 feet long, and they would be bent out of a straight line, perhaps, a foot. Some of them were as fully 12 inches in the middle.
27009. Q In your opinion, would that be done by a blast of air?
A Well, no, I think not, it was a blast of something, but it certainly was not air, in my opinion.
27010. Q Then you came to the point in front of the 4th Left, and you came upon some rails?
A Yes.
27011. Q The three which drove there was an easterly force?
A Yes, a very considerable force easterly there.
27012. Q Well, the atmosphere—I think you wanted to say something about it at some point there, the edge of the hill?
A That is the edge of the 4th Right. We tested the 4th Right again.
27013. Q What did you find there—how did you find the atmosphere?
A The atmosphere was dull that morning.
27014. Q In your words dollar they used?
A Yes, dollar they used.
27015. Q Do you mean there was no movement in the air?
A None then, none whatever, that was a stagnant atmosphere in there.
27016. Q Did you examine the edge of the hill there?
A Yes.
27017. Q More closely than before?
A No, I do not think that it would be more closely than before, simply because — [interrupted].
27018. Q Well, you have a steel something here that you have not noted before?
A Yes, I have noted now that the steel was quite clean, but, of course, that was cleaned the first time we started it, but not scrubbed.
27019. Q Well, what deduction did you make from that?
A Well, it appeared to me as if the steel had been being rubbed at the time of the explosion or had fallen for some time afterwards. It not being equal with that on the upper side, it seems reasonable to think that it had fallen over the dust-bowl had passed.
27020. Q And that opinion, I think, is based upon an authority in Arlington Heights' track, by which that is made a test?
A Yes — we had an instance or two of that on the Exeter Railway four years ago. We could distinguish between the heels that had fallen before the accident, and the heels that fell after the accident.
27021. Q How did you distinguish?
A I have several heels that had been fallen before the accident. I had travelled over them several times before the accident.
27022. Q How did you find them after the accident?
A The fallen ones were covered with a thick coating of dust.
27023. Q And you say there were others that had fallen — [interrupted]?
A After the accident.
27024. Q And how did you find that?
A The stones were quite clean.
27025. Q So that presents you with the different appearances of stones which had fallen before, and stones which had fallen after, the explosion?
A Yes.
27026. Q And, applying your experience, you express your opinion that that steel fell after the dust had been swept?
A Yes, I do.
27027. Q Then I take it that your opinion is that some of that ball in the Square yard in the 4th Right had really come down after something else had happened in prospect there?
A Yes.
27028. Q And after the worst damage was done?
A Yes.
27029. Q You saw the heap of coal in the road?
A Yes, I did.
27030. Q Were you able to form any opinion about that?
A Well, I am at a loss to know where it came from, and I cannot find anybody who can help me.
27031. Q It is as great a mystery to you as to other people?
A Yes, I do not know where it came from. It was lying on the main road. It could not have been there before the accident.
27032. Q Now, you see the remnants of a wood chock there?
A Yes, the wood chock was a few yards on the easterly side of the coal-heap.
27033. Q Does that show any light on it, in your opinion?
A Yes. Of course, I never saw this chock before, but I was told that, before the accident, it was standing at the corner of the 4th Left. If that be so, the force has gone easterly, and has driven the remains of the chock 4 or 6 yards.
27034. Q That is just another indication of an easterly force?
A Yes.
27035. Q Then you saw a rail-chock?
A Yes.
27036. Q That has been represented on Mr. Condit's plan?
A Yes.
27037. Q And that, in your opinion, indicates an easterly force north of the 4th Right?
A Yes, that is so.
27038. Q There is a second pair of wheels—does it also on Mr. Condit's plan?
A Yes.
27039. Q And that, in your opinion, indicates a force?
A Before.
27040. Q Now, there are a number of other indications there showing force in the same direction?
A Yes, bridges into and up the ways.
27041. Q You agree that they all indicate a force from the 4th Right easterly?
A Yes, I am satisfied of that.
27042. Q Then Adam Frost, indeed, and yourself left the carts at the 4th Left?
A Yes.
27043. Q And you travelled down to, and through, Gell's, Condit's, Price's, and Powell's Flats?
A Yes, and we walked right over toward here to the 4th Left, to the telephone station.
27044. Q Did you see anything on that journey that is significant at all?
A No. There were two or three hills of coal, but nothing about them to indicate direction at all; and all the way along the road the destruction was very small.
27045. Q Then you joined the party again at Powell's Flat?
A Yes.

27120. Q And travelled down in the shaft heading? A In the shaft heading.
27121. Q Do you mean down No. 1, till you came to the shaft heading? A We went down through those places [pointing to the plan].
27122. Q You travelled due west? A Due west from Town's flat, in the direction of the furnace.
27123. Q Then you and Morrison went to the face of the place in which Mr. McCabe and Mr. McManus were lost? A Mr. Anderson and I, I think.
27124. Q Mr. Anderson, and Morrison, and you? A Yes, I may say that we were searching, in a general way, for the two boys, as we went along there.
27125. Q You always kept west in the ignorance? A Yes.
27126. Q And you tried the rest? A Yes.
27127. Q What did you find the air? A 174,700 cubic feet we found at that time.
27128. Q And you drilled at one place and before? A Yes, it was necessary to make two measurements—behind the furnace 50,000, and in front 37,000.
27129. Q Was that much more than the quantity required in the mine? A It was certainly a great deal more than the necessary quantity.
27130. Q That is what I mean? A Yes.
27131. Q And then you went out? A Yes, we travelled outside by the shaft travelling road.
27132. Q And you went to again on Friday, the 15th of August? A Yes.
27133. Q Accompanied by Mr. D. A. W. Robertson, Mr. Anderson, Mr. Jeffrey, Mr. Watson, and Mr. McCabe? A Yes.
27134. Q Into the 1st Right? A Yes.
27135. Q And you came across thirty-four tails? A Yes—that is, up there in the 2nd Right.
27136. Q And those tails were all forced in one direction? A Yes, they all showed a force in a north-westerly direction.
27137. Q Now, the angle is very acute from the No. 1 main road in the 2nd Right—very acute? A Yes.
27138. Q Would that force, do you think, be the force that came down the No. 1? A Yes, I think so.
27139. Mr. Robertson: Q Do you call that an acute angle? A Yes, it appears to me to be about 60 degrees.
27140. Q I do not call it that acute? A I call any thing less than 90 degrees an acute angle.
27141. Mr. James Smith: Q It is acute from the side [point].
27142. Mr. Robertson: Q It is not very acute.
27143. Mr. James Smith: No, not very acute, but anything less than a right angle is called acute.
27144. Q You have a mine here that was hit with a large hole in it, so if a mine had been blown through it? A Yes, it was a main tank, and there had been a steam or some other body driven right through the end. It was a jagged hole.
27145. Q That it got through both ends? A No.
27146. Q Did you find it on the tank? A No, but we found the hole, and it was a hole that had been nearly made.
27147. Q Did you find the stone? A No.
27148. Mr. Smith: Q In what direction was it? A It was in the way that the empty tank had been going up here, north east.
27149. Q And it went through the outcrop and? A Yes, the outcrop end of the tank.
27150. Mr. James Smith: Q You made a test for gas at the 1st Right, just edge again? A Yes. Now we are coming back to what Mr. Robertson was speaking of before. I have got here that I got 1 per cent.
27151. Q What was with you? A Mr. Robertson was close by, and there may have been another one close by, but the remainder of the party would be down—[interrupted].
27152. Q How far were you up on the mine? A About 2 or 3 feet above the roof of the mine.
27153. Mr. Robertson: Q My recollection is that there was more, and you didn't get with 1 per cent, the substance was so very fine that different conclusions might be come to by two different observers? A Yes, I admit that.
27154. Mr. James: Q With a hydrogen lamp? A Yes.
27155. Mr. James Smith: Q Well, if 1 per cent. was really there, it would indicate that gas was being produced there? A Yes; if we could say positively that there was 1 per cent, it would certainly indicate that gas was there.
27156. Q How much did you find on a given occasion? A Well, I and Mr. Anderson find 1 per cent.
27157. Q You say "no force observable." What do you refer to there? A "No force observable" as coming down the mine, except a pile of timber. That means that there was no force observable, as coming down the angle road, and if we got to the travelling road and the engine road, where there was a pile of timber.
27158. Q You mean nothing to indicate force? A Yes.
27159. Q Then you come to that pile of timber, and that force is out here? A Yes.
27160. Mr. Robertson: Q Do not you mention your attention being drawn to indications of force? A I recollect a large stone.
27161. Q Do not you recollect the grays? A Yes, large grays. That is what I speak of.
27162. Q I am referring to the props across the water. Do not you remember some props forced half way up on sticks, with that big hole having on? A I do not remember that.
27163. Q Do not you remember our having a discussion? A You may have had a discussion with some other person, I do not remember it, but I certainly remember a heap of timber that had been ordered away down here close to the rope road, which one of the deputies said had been thrown out.
27164. Q Do not you remember discussing how it could occur for those props to be pointing towards? A I do not remember that. I do not dispute what you say, that the discussion took place.
27165. Mr. James Smith: Now, a piece of roof stone, 3 feet square and 4 inches thick, was thrown 6 yards up the road? A Yes.
27166. Q Did that indicate anything? A It indicated an opposite force.
27167. Q You found this 6 yards up the road? A Yes.
27168. Q Up from where? A Up the road from the travelling road.

Witness—W. Washburn, 12 March, 1912.

- 27185 Q What direction of force did that indicate? A That appeared to be part of a fall on the travelling road, and therefore it had been driven on to inside the grill in the opposite direction to the pile of timber that I have just spoken of.
- 27186 Q Was that as directly caused with coal-dust as the part that appeared to you to be that affected? A No, I do not think that there was much contact on it, I think it was fairly clean.
- 27187 Q Could you leave it open to be able to say that it had been blown into the left light from the travelling road? A Well, the only evidence that we had then was that it had gone forward. It had come from the fall on the travelling road.
- 27188 Q Did you see the place where it had fallen from? A Well, it was only part of the fall, there were other blocks still lying on the travelling road, which had constituted the fall.
- 27189 Q So that you found it to the east of the place where it had fallen? A Yes.
- 27190 Q So that it must either have fallen there or been driven there? A It could not have fallen there.
- 27191 Q It had been driven there.
- 27192 Q How do you account for these opposite forces? A Well, I suppose there are always opposite forces in an explosion of that kind. There is the motion of the air after the blast has expanded itself; and that out-throw will have considerable force in it, although it may not be so strong as the original, there will still be considerable power in it.
- 27193 Q That is, supposing that there is only air going out and coming in? A That is, supposing that, when the explosion took place, everything was driven in front of it, and then, when the explosion was over, the air would rush back.
- 27194 Q Then you are not supposing any other force at work but air? A Yes, I suppose there is gas and coal-dust as the motive.
- 27195 Q Now, what conclusion do you come to from all these indications of force, as to the cause of this explosion? I think you have framed it here (referring to Mr. Hamble's note)? A Yes.
- 27196 Q Then read your notes, because that is deliberately written? A Yes.
- 27197 Q Yes (Wash). It would be a better test of the value of what he would not read it.
- 27198 Q Yes (Hear). If Mr. Wade prefers to hear Mr. Hamble's idea without the notes, then perhaps it would be better.
- 27199 Q You can give it just as well without the notes—you have thought it out? A Yes.
- 27200 Q Mr. Wade (Hear). Q You have thought that out? A I have.
- 27201 Q And you wrote your thoughts down on paper? A Yes.
- 27202 Q And in an answer to me as you could? A Yes, and perhaps in a little better way than I can give it to you now. I wrote this out, so that I could put it as clearly as possible, but I think I can give it. A fall of coal occurred in the lower part of the H-arms gate; this fall of coal down into some live-damp, that live-damp was ignited by a light, either on the travelling road or on the rope road, the explosion commenced from that point, and went both right and left along the rope road.
- 27203 Q Where you say "right and left" what do you mean? A Went toward and outward along the rope road of course, it may say it was helped along by coal-dust, drawing it out to the rope road.
- 27204 Q That is what I mean—what do you mean by being helped along by coal-dust? A It was accelerated.
- 27205 Q Accelerated by what? A By coal-dust.
- 27206 Q Being what? A Lightening.
- 27207 Q You believe that the coal-dust moved by this blast/light? A Yes, lighted.
- 27208 Q And what? A And commenced the explosion.
- 27209 Q You mean lighted and exploded, or exploded? A Exploded.
- 27210 Q I want you to tell it? A The forward force on partly displaced some gas, or ignited some gas, at the face of the first right-hand headings (naming the No. 1 main level headings).
- 27211 Q Mr. Wade? Q Did you say displaced? A No, I understood the word displaced.
- 27212 Q Mr. Wade (Hear). Q What do you mean by the first right-hand headings? A The headings of the No. 1 main level.
- 27213 Q The force ignited gas in the face of these No. 1 main level faces? A Yes.
- 27214 Q And it was the gas that burst, the current, and burst. Where and how, and blew out these stoppings out to the main road? [No answer.]
- 27215 Q Is it possible for you to form an opinion as to how far the dust explosion travelled. I mean that there is a recognized form or action which coal-dust explosions take, is there not? A Yes.
- 27216 Q Is anybody able to say how many dust explosions take place in such a work as ours? A No, I think it is impossible to say. There may be a series of explosions—a series of ignitions.
- 27217 Q Then I understood you to have heard the opinion that there was a blast of air, a gas explosion, and a coal dust explosion? A Yes, the gas was forced from the grill by a fall, that gas ignited, and the explosion commenced at that point.
- 27218 Q And that accounts for the two forces, where and why? A Yes.
- 27219 Q And you believe that was followed by further gas explosions as it moved of the No. 1? A Yes.
- 27220 Q And the coal-dust explosion? A By a further gas explosion at the end of No. 1, which burst these men, and burst that corner, and blew out these stoppings in to the main road.
- 27221 Q And that was followed by coal-dust explosion? A Yes, accompanied by coal dust explosion.
- 27222 Q Now, if there is evidence of contradictory forces in the mine, would that solution of it account for these? A That solution would not account for all the contradictory forces, but I think this solution accounts for the great bulk of the forces that were observed.
- 27223 Q If you cannot tell where coal-dust explosions take place, you can hardly know every indication of these can you? A No.
- 27224 Q Do not get upset, after an explosion in which coal dust takes part—a series of coal-dust explosions—a series of contradictory forces? A Yes, I should always expect that.
- 27225 Q Nothing more or another? A Yes, nothing more or another. I think that it is always the case.
- 27226 Q What opinion have you formed as to this coal dust theory that has been promulgated by Mr. Robertson—the theory that a wind blast alone is the cause of this disaster? A I cannot understand it. I can not understand how a wind blast could have ignited and been seen, and generate such a quantity, and all the other gases found after a coal-dust and live-damp explosion. I cannot understand a wind blast doing those things.

27226 Q Can you visualize the destructive shattering of three which you saw with a single blast, as Dr Robertson has suggested? A No, I cannot visualize them.

27227 Q Do you think it is possible, practically possible, to say how the roof of that area on the 4th Street fell? A No, it is not possible to say how it fell.

27228 Q Do you think it is probable that 40 yards square of roof fell simultaneously so as to occupy only half a second in falling? A No, I think not, very improbable.

27229 Q Very improbable? A Yes.

27230 Q Do you think it is a safe premise to have a theory of an explosion upon the assumption that a roof 40 yards square fell in one block simultaneously in half a second? A No, I do not think it is a safe premise.

27231 Q Do you think it is a sensible assumption? A No, I think it is the opposite.

27232 Q Have you ever known such a thing to occur—to be accelerated? A No, I have known falls of coal to occur in a gash and drive out large quantities of gas, but I never knew a "windblast" to mean one that did the destructive thing in this way.

27233 Q A roof that was suspended—how would you expect it to fall? A Well, it falls in places. There are, occasionally, a large block come down, but, generally speaking, a gash falls in places. It may divide on the way.

27234 Q You know it has been suggested that the gas, or the inflammable material, which you found at the end of No. 1 was the result of the disintegration of coal-dust following upon the blast? A I cannot accept that.

27235 Q You see no reason for accepting it? A No.

27236 Q And you see no reason for thinking that it was the ordinary common or garden fire-damp? A Fire-damp.

27237 Q What do you understand, Mr. Hendrie, by a gassy mine? A A mine in which gas is frequently found by the ordinary men. I should not say "frequently found by the hydrocarbon lamp"; but frequently found by the ordinary forms of a lamp.

27238 Q From what you saw parallel of the gas found at that mine, and from what you know of the mine at that time, how can you doubt whether, the slightest doubt, that gas is given off in that mine? A No doubt whatever.

27239 Q And, if you had never seen it at least of it, would it be reasonable to assume that that mine is absolutely free from gas, from what you know of the mine means is that correct? A No, I think, even though I had never heard of gas, or never seen gas—I think it is a mine in which it is likely that gas would be seen.

27240 Q And then, when you get the experience which you have had parallel, and know of that which is acknowledged by other people, that someone may doubt from your mind? A Yes, it does. There are very few of the mines absolutely free from the damp.

27241 Q If you once accept it as a fact that it is a gassy mine, and then know of the indications which resulted from the explosion, do you see any possible means for thinking that gas played a part in the disaster? A No, I am satisfied that it did play a part, a very important part, in it.

27242 Q I think you examined the mine in 1929? A I did.

27243 Q And if you did not find any gas then? A No, I answered with the safety-lamp at the goaf edge, but did not find any gas.

27244 Q Now, you know that a number of recommendations have been made by the Mines' Delinquents Board for clearance in the law? A Yes.

27245 Q Supposing that it were thought desirable to submit to some and deputies to an examination, what sort of examination should it be, do you think—as oral or written examination? A Orally, if not orally, and, because these men, while being good men at their work, may be a bit very little objective.

27246 Q You are one of the Board of Examiners, I think? A One of the three examiners, yes.

27247 Q And you think there would be an advantage, without any disadvantage, in making the examination oral? A Yes, I know that we get the best results out of a man in the oral examination.

27248 Q It is suggested that the Inspector should have the right to require safety-lamps to be put into a mine, and that the management of the mine should have the right to have the question referred to the arbitrator under section 22 of the Act. Do you think that a law proposed? A I think so, yes.

27249 Q It will give both sides, where there is a difference of opinion, an opportunity of stating a case? A Yes, you should be taken that the arbitration proceedings are not prolonged unduly, so that there might not be an explosion in the meantime.

27250 Q You know it has been suggested, further, that, in the meantime, pending the decision of the arbitrator, lamps should be put into the mine? A Yes, that would surely be.

27251 Q And, further, that the Department might keep a stock of lamps on hand, so that, in case the award should be that lamps are not to be used, a mine would not have been compelled to purchase a lot of lamps for which there was no use? A Yes, I think that is reasonable.

27252 Q You think that is reasonable? A Yes.

27253 Q Now I want your opinion on the proposed, the absolute proposal, to substitute here for the furnace as all cases in mines? A It would not give hardship upon the smaller collieries. There would have to be a few large collieries beyond which it should not apply. The law might be a certain number of persons employed.

27254 Q Obviously that restriction do you consider that the law is in all cases as necessary that you would compel all existing mines to submit their furnace and accept laws? A No, I could not go as far as that. The law is not absolutely necessary in every mine at the present time, we have some small mines which are very well conducted without.

27255 Q Do you see any objection to trusting that on the same way, and, where the Inspector requires a law to be altered, and the management object, to let it be settled by arbitration? A No, I see no objection to that.

27256 Mr. Hendrie: Q You might ask him if he has any proposal in the way of drawing the law that is applied to us in the matter of men.

27257 Mr. Bruce Smith: Q You said something just now as to drawing the law at the number of men? A I thought that all mines employing more than thirty persons underground ought to be asked to validate by law.

Witness—W. H. Smith, 22 March, 1904.

22189 Q Indirectly, then? A Yes, all mines employing more than thirty persons.

22190 Q This Mount Kemble,—do you mean to say that you would require Mount Kemble to adopt a less an substitution for the furnace? A I mean to say that, if there is any alternative made to the law, Mount Kemble should be brought into it, and that, therefore, having drawn a line at thirty persons employed, it would bring Kemble into it.

22191 Q Would you refer those questions to arbitration, or would you make it an absolute rule? A I would be likely to make an absolute rule about the thirty persons.

22192 Q I know that. With regard to those over thirty persons, do I understand you to agree, on your opinion, that all mines containing a few thirty persons should change from them to furnaces at once; or that it should be referred to arbitration? A I took your remark to be that the Inspector was to have the power to direct, and I should certainly say that he should have the power to direct such a mine as Kemble, and then the owners, if they object, may go to arbitration.

22193 Q Then I understand you would allow all mines employing under thirty men to use a furnace; and all over thirty you would make subject to the Inspector's order, and subject to arbitration if the management object? A Yes, that is so.

22194 Q I took it at first that you would make an absolute order by book or by oath? A I had right of your question for the time being.

22195 Q Now, with regard to sealing off, a proposal was made by somebody to absolutely seal off waste workings—"Waste workings to be absolutely sealed off, and unworked by return workings, such return workings and to come in contact with inside"? A Well, it is not advisable to seal off old workings, except in case of fire.

22196 Q You dissent that part of it? A Yes, if there many mines impracticable to have them unworked by return. I think that, if there is a breathing hole left between the old workings and the return airway, that would be sufficient.

22197 Q A proposal was made that all pillars, except supporting pillars, should have ventilation not more than 30 yards apart, do you approve of laying down a hard and fast rule of that sort? A No, certainly not.

22198 Q Is it practicable to adopt a hard and fast rule for all mines, irrespective of their conditions? A No, it is not practicable.

22199 Q What does it depend upon? A The difference in depth precludes the idea. Take the Sydney Coalfield Colliery, they could not go in as far here, they would have to have pillars very much larger than that. The Manxfield pillars are larger than that.

22200 Q So it really depends on the individual conditions of the mines, and the depth from the surface? A Yes.

22201 Q When would you have that in—the question of the size of the pillars is related to the safety of the mine? A I should leave it to the Manager. I think. He is the right man to have it.

22202 Q I suppose the safety of the mine and the freedom from loss of coal is so great an incentive as the cost to get coal? A Yes.

22203 Q You leave that to a Manager? A Yes.

22204 Q Do you approve of the proposal that has been made to have a monthly examination and report by the manager? A

22205 Mr. Langtry [It is changed to the under manager]

22206 Mr. Bruce Smith [Q Do you approve of the proposal that the under manager should make a monthly examination with the hydrogen lamp? A Well, while it may be desirable that they should do so, I do not think it is worth while making any law on the matter, because I think in the future it will be done. It is done now in several mines, the under-manager and the Manager carry their hydrogen lamps occasionally]

22207 Q Do you see any reason for altering the air provision that exists at the present time? A No, I do not. I think we have a provision now, which, for the moment that is at present supplied, is equal to the 100 cubic feet required for each horse. The amount of air that we have flowing through the working districts was in one of mine gave more than 320 for each horse, and 200 for each man and a boy.

22208 Q You made several tests of the ventilation in Mount Kemble on your last visit, after the mine had got into working order? A That is, measuring the air.

22209 Q Yes, and you ascertained how much air was going into the parts of the mine where men were employed? A Yes.

22210 Q What was the result of that,—did that show that the air was being effectively expended, so as to give sufficient to the men? A It appeared to me that, where in working order, the mine would give 300 cubic feet for each person employed.

22211 Mr. Robinson [Q What is the value of Mr. Henshaw's measurements, taken at a time when the ventilation was all restricted?]

22212 Mr. Bruce Smith [I asked him what it is in his later state, when the ventilation was restored.]

22213 Witness [The ventilation had not been restored when I made my measurements.]

22214 Mr. Robinson [The very fact that the ventilation had not been restored might be a reason why Mr. Henshaw should get away.]

22215 Mr. Bruce Smith [Q What is your view about the ventilation of down? They have proposed that all down should be directed so as to clear of their own exhaust? A As a rule, they do clear now.

22216 Q Would you have them self-clearing? A They are self-clearing.

22217 Q Do you approve of that being made compulsory? A It is compulsory now, there is a special rule to that effect.

22218 Q That is, once the disaster? A No, before. The special rule was proposed to the whole of the northern collieries, I think.

22219 Q And adopted? A And adopted.

22220 Q Do you not know about the southern? A I do not know about the southern.

22221 Q What do you think of the suggestion that there should be weekly measurements of air in each section? A It is quite unnecessary, quite unnecessary. It is measured now once a month, and it is measured by the competent men, he goes round, perhaps once in eight or ten weeks, and, further than that, I think there is not anything required.

27291. Q What is your view upon the subject of watering? A Well, the haulage roads certainly ought to be watered, except those that are naturally wet throughout. Of course we are pretty well all agreed on that, but it is the system of watering, the method to be adopted, and my opinion is that no watering is effective unless it waters both the road, the sides, and the floor. We have had several attempts in the north to water roads, but, unfortunately, they watered the floor and left the other part unwatered.

27292. Q What is your view of the possible danger of watering the road, and so causing hills? A Well, in some cases you may reduce hills, but there are other cases where the road is not affected. Take Doolley, for instance, they water their road, and sides, and floor, and everything else, and it does not affect it.

27293. Q All over the mine, or just the haulage road? A Certainly on the haulage road, where they are dusty.

27294. Q You will admit that the conditions of each mine should regulate the treatment of each mine? A Yes.

27295. Q What would you think of the suggestion that the Inspectors should have the power to order more extensive watering, and, if the management object, put that under arbitration also? A Oh, dear, well, I suppose so, having consented to the other; but I really think that is putting too much on the Inspectors.

27296. Q Can you formulate any rule applicable to all mines as to watering? A No.

27297. Q Would not you have it primarily with the Manager? A Yes.

27298. Q With power to the Inspectors to differ it? A Yes.

27299. Q And power to refer it to arbitration where they do differ? A Yes, but I should certainly leave it to the Manager first, to know the conditions. He knows where the water would damage or not damage his roof.

27300. Q It has been suggested that the Manager should give more personal time to the management of the colliery, do you think it is possible to lay down any rule? A It is not possible to lay down any rule, that would not be very pleasant to some people.

27301. Q Of course a Manager has a great many other duties besides? A Yes. You may say that a Manager ought to go down a mine twice a week, but what is the use of it.

27302. Q Can you lay down any rule at all as to how often the Manager should go down a mine, or how much of the mine he should see each time? A No, I could not.

27303. Q Is it practicable? A It is not.

27304. Q How often do you think a Manager should go practically through the mine? A Well, if I were a Manager in any of these mines that I know of in this State, I should see it once a week—mean working parts of the mine once a week.

27305. Q Do you think that is practicable in all mines? A I think so.

27306. Q Would it be practicable in the Manxwepitum Mine for the Manager to see all working places once a week? A I can do it in those days, I think.

27307. Mr. Johnston: I venture to say you could not do it in a fortnight.

27308. Witness: Do you mean all the working places?

27309. Mr. Johnston: There are other parts.

27310. Witness: I would consider myself in the working parts.

27311. Mr. James Smith: I am asking you whether you think it is practicable to lay down a definite rule to water? A No, I do not think so.

27312. Q Is it possible to lay down any practicable rule? A I do not think so.

27313. Q Would you think it wise to lay down a rule that every Manager should visit all the working places of his mine, irrespective of its size or position, once a week? A No, I would not consider it wise to do that.

27314. Q Some parts require special attention, do they not? A Yes, some parts might require the Manager's attention daily for a week as was the case in Stockton a while ago, it required the Manager's daily attention for two weeks.

27315. Q There is yet one other subject I want to ask your opinion upon: the practicability of giving instruction to the employees as to the means of escape in case of an explosion? A Yes, that could be done, I think.

27316. Q How would you propose that to be done? A The officials ought to be instructed, and well drilled, as they are in some of the mines in the north now.

27317. Q How? A By headquarters at all junctions, and by having the return road fenced off on each side, or the old places opening into that return fenced off so that a person, in going, got into that mine, cannot get out without getting to the far end. He is put into a road that is fenced off on each side.

27318. Q Is that done at many mines in the north? A Yes, it is done at the Hutton Colliery now, and, in a less extent, it is done in two other mines, the Keweenaw Mine.—(Interrupted.)

27319. Q Then a man cannot very well get off the track? A Not very well, not inadvertently. There is another mine where the deputies, at regular intervals, lead the men out by the return and by use of the under shaft.

27320. Q How long has that been going on? A For the last twelve months—more than that.

27321. Q Before the Keweenaw disaster? A Oh, yes, it is two years ago.

27322. Q What mine? A The Stockton Mine.

27323. Q And do the men willingly go? A I do not think they are very willing to do it, but they do go.

27324. Q By sufficient numbers to make it worth while? A Yes, about a dozen will go with the deputy at one time.

27325. Q It has been suggested that all men should be required to leave their travelling roads up to 8 feet high? A That all travelling roads should be not less than 8 feet high?

27326. Q Yes? A Well, it is right enough to tell him that when we have that mine, as we have at present, but it would be very costly, and almost impracticable to do it when we are working the mine.

27327. Q Well, what is a thin seam up north? A We have one seam 8 feet 6 inches.

27328. Q Would that be commercially practicable? A No, it would not. It would be a very heavy cost.

27329. Q In your opinion, could the mine go on? A If there were many roads, it would certainly take away all the profit, and they do not work the mine for the benefit of the men employed.

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27330. Mr. Smith: Q Are there any mines in the Northern District where that is done at present? A Yes, we have several mines in the north where the travelling roads are more than 10 feet where the mine is less than 6 feet.

27331. Mr. Bryan Smith: Q What was that done for? A It was done for the purpose of making a good roadway, I think, and I think there has been some consideration given to the travelling of the mine as well.

27332. Q That is, on the travelling road? A That is, on the travelling road.

27333. Q Has that been an expensive thing? A No, I suppose it would cost 10 or 15, per yard to get that road done.

27334. Q What was the nature of that road? A It was fairly steep. It was good climbing ground.

27335. Q If that is so, how do you reconcile that with your statement that it would be too costly? A It is done there because they have another object in view. They have large horses to travel down that road.

27336. Q Is it advantageous to that mine to use those large horses? A Yes.

27337. Q Does it pay them to do this large breaking in order to use those large horses? A Yes.

27338. Q There there is a commercial advantage there? A Well, they could not work their plant any well with smaller horses, because the mine is dipping and the tubs are very large, and they require those large horses.

27339. Q Can you name any mine in the north in which the same thing is done, without a commercial purpose? A No, I think not.

27340. Mr. Smith: Q What mines is that done at, that you know of? A Brown's collieries, at Wood.

27341. Q They have individual names? A Brown's No 4 and No 1, and the Duckfield Collieries.

27342. Q Now, on the subject of explosives, I want to ask you what do you think of allowing the use of gas-burners to continue? A I think the time has arrived when the use of gas-burners ought to be abolished in dry mines.

27343. Q And what would you substitute? A Well, there are several of the "permitted" explosives. I suppose we would have to take care of those.

27344. Q Do you approve of publishing a list of permitted explosives? A Yes, as in England. I do not think we can do better than follow the lead they have set us in Great Britain in regard to their Coal-mines Orders.

(At 12 30 p. m. the Commission adjourned till 2 p. m.)

RE-EXAMINATION

(On resuming at 2 p. m., Mr. W. E. Pratt intended to take shorthand notes of the evidence and proceedings.)

JOSEPH A. JEFFRIES was sworn, and examined, as under:—

(This witness was called by the Commission at his own request, and Mr. Bryan Smith was asked to conduct the examination-in-chief as a matter of convenience.)

Examination-in-chief by Mr. Bryan Smith:—

27345. Q What is your name? A Joshua Jeffries.

27346. Q You are at present Manager of the Metropolitan Colliery? A Yes.

27347. Q For how many years have you been Manager? A Two years.

27348. Q What general experience have you had? A Sixteen years.

27349. Q Has that been gained exclusively in New South Wales? A Yes.

27350. Q In that two years the extent of your experience as Manager? A I was Manager at Greta Colliery, I was Assistant Manager before that, and I had a general general experience.

27351. Q You were Assistant Manager at Dooling? A A general assistant.

27352. Q Have you made a study of the theory of coal-mining in addition to gaining practical knowledge? A Yes.

27353. Q What is the extent of the output of the Metropolitan, of which you are now Manager—can you give me any idea? A 1,100 tons per day.

27354. Q What is the area over which the mine has been, or is now, working? A Roughly speaking, from 2,000 to 3,000 acres.

27355. Q What is about the length of the longest road? A The length of the longest road would be 3 miles.

27356. Q And what is about the aggregate length of all your mine roads put together? A The main shafts and the return airways, which is considerable mine roads, would be about 11 miles in length.

27357. Q You have the management of the whole of that colliery in your hands, and have had the two years? A For two years.

27358. Q You have other duties appertaining to the mine to discharge? A I have the responsibility of the management under the Coal Mines Act.

27359. Q Will you tell me what is the main depth of the Metropolitan Mine? A The shaft is 1,100 feet deep, and the other comes from that depth to 1,700 feet, the latter depth being where we are working under the hills.

27360. Q Generally speaking, 1,700 feet is the deepest part from the surface? A Yes.

27361. Q Will that depth increase as you go on? A The depth will increase going westerly—towards Sydney.

27362. Q Have you had any experience of gas in that mine? A Yes, I have. The Metropolitan Mine yields more gas than any other mine in the world. An examination made by the hydrogen lamp of the mines always shows that 2,000 cubic feet of gas is exhausted every minute and carried away by the circulation through the return shaft, and 400,000 cubic feet of air per minute is given off.

27363. Q Are there any other precautions about the Metropolitan Mine apart from the question of gas? A Yes, it is a very dry and dusty mine, and it is subject to outbursts of gas and to small runs of coal.

27364. Q Perhaps not more than 100 tons of coal may come out by reason of the gas or pressure? A Yes.

27365. Q What staff have you immediately under you? A An under-manager, ten deputies, and twenty workmen, who are practically constant deputies.

27366.

27365 Q. They are the qualifications of the deputies? A. Yes.

27366 Q. What number of men have you working? A. There are 600 men underground—that is, all hands. There are 740 or 750 men, and the balance would be on the surface, on the ground.

27367 Q. What means of locomotion have you? A. The mules and rope haulage.

27368 Q. Is there any other special information that you could mention? A. I think that is all of a general descriptive character, so far.

27369 Q. Now, you know that a number of correspondences have been made to the Commission, with a view of an alteration of the law in regard to coal mining? A. Yes.

27370 Q. This is one of them—

[The Managers, under managers, deputies, and others here to hold certificates of competency by examination, and to have had five years' practical mining experience, before being eligible for competitive position.]

Have you anything to say as to that? A. With regard to Managers and assistant-managers, I think they are already passing with an all promise.

27371 Q. What about deputies and shot-drillers? A. I object to them, holding certificates. I think that the Manager should appoint them. Under the present Act he is compelled to appoint competent persons to the position, and even now, if he does not appoint competent persons, he can be dealt with. The Manager is over the qualifications of his own men, and he comes in contact with the men every day. We generally draw the deputies from the miners, and I think the Manager is the best judge of that qualification of the men for that position. What is more, there is a possibility, in a mine like the Montgomery, of having to take men who have had no experience of gas, so that we have had men come down with underground certificates, and we have employed them in so far as their past experience with gas, with a view of their getting a first-class certificate. We think these are excellent men who have never seen gas, and it would be unfair to take the matter of the appointment of deputies and shot-drillers out of the Manager's hands. The Manager knows better than a stranger what men he should appoint.

27372 Q. You know that it is not proposed to curtail the power of the Manager, but to offer additional security? A. My idea is that this examination would curtail the power of the Manager.

27373 Q. Suppose that you only curtail the power of the Manager to the extent of requiring him to make a selection from men who have passed a theoretical examination—such a technical examination, but an examination to be gas. The examination might be as to the method of finding gas, of testing it, of firing shots, and questions of that sort. Do you see any objection to an examination of that kind being passed by the men, in addition to the more practical examinations by the Manager? A. I think that I see more competency in test men whom I require for the Montgomery Mine than any other situation would be.

27374 Q. You think the passing of an examination more than any other situation would be. I see more competency, but why would find by reason of not having the practical if mind or the necessary experience, in past examinations? A. I will give a case as an illustration. Three weeks ago we required three deputies, and it so happened that we did not have three men with certificates, but we had men who were perfectly competent to fill the positions. If we had been limited in our choice, by being compelled to take men who had certificates, we might have had to turn round and take men from outside mine—men who are only used to a mine with no gas.

27375 Mr. Hendon Q. Do you require a practical knowledge of gas by the persons whom you employ as a deputy? A. Yes, we do.

27376 Q. You require it in every mine? A. That opens up a large question. It almost brings the question down to one of appointing men of all classes. For a large mine you want a man who has had experience of gas. In any other mine you do not necessarily want such knowledge.

27377 Q. You know that gas is given off in nearly every mine? A. I know that there are mines in the State where I should be justified in saying that gas has never been seen.

27378 Q. I suppose you know that, even in mines where gas has not yet been discovered, it might be possible for gas to be given off at any moment? A. That is quite possible.

27379 Q. Should a person who has not a certificate know, in a practical manner, when gas is given off? A. Yes.

27380 Q. Then you do require it, as a necessary qualification, that a deputy should have a practical knowledge of gas? A. I will not go that far, but I think it should be left to the Manager. If the mine is a gassy one, a knowledge of gas is necessary. If gas has never been seen such knowledge is not so necessary, and a good practical man might fill the position satisfactorily. What I say is that the power of the Manager should not be curtailed. Let him choose his own men.

27381 Mr. Bruce Smith Q. It is not his power of choice which would be limited? A. I take the two things to be the same.

27382 Mr. Hendon Q. Suppose you have a mine where gas is not given off—gas may be given off at any time, and you may have a disaster? A. Then you raise the question of not employing hundreds of men, as deputies, who have never seen gas.

27383 Q. You are witnesses, have deputies who have seen gas in a faultright? A. A faultright is not long enough for a man to get a knowledge of gas.

27384 Mr. Bruce Smith Q. Tell the Commission some of the tests which you give? A. We take the deputies from the constant division, these men are working under the deputies, they go round the workings with them, and stay into the deputies' share as the best men.

27385 Q. They are students? A. We know for years that they are coming on.

27386 Q. You are preparing them? A. Yes.

27387 Mr. Hendon Q. Do you regard all Managers as being equally competent to select men as a board would be? A. For their own mine—yes.

27388 Mr. Bruce Smith Q. Almost more so? A. I think the Managers are most competent.

27389 Q. You think the Manager is the most competent person to choose for his own mine? A. Yes.

27390 Q. You are not surprised to a thoroughly competent man for all deputies for all mines? A. Yes.

27391 Q. It should be a special examination for such men? A. Yes. I think if you could send an examiner into a mine, and let him see the practical work of a man, that might assist him.

27392 Q. That would not appear to exist as deputy unless gas had attended him for some time? A. No.

27393 Q. And you want him to be experienced to work coal? A. Yes.

27394 Q. Whether examination might have passed, you would not choose him as deputy unless he had had this experience in your own mine? A. It would be unsafe.

27430. Q Suppose the Inspector of Mines comes to the conclusion that the conditions of a mine make it desirable that a fan should be, as soon as possible, substituted for a furnace; do you think that would be a good reason to call upon the Manager to show why a fan should not be substituted? A I do not think that.

27431. Q You know that some Managers are prejudiced about these things, just as Inspectors may be? A If you have a mine where the return air passages furnished with gas, I do not think that any prudent Manager would object to put up a fan.

27432. Q Suppose the Manager is not a prudent man? A A mine Manager should be prudent.

27433. Q If the Inspector came to the conclusion that the safety of the mine required the substitution of a fan for a furnace, you say that you would not give priority to the Inspector to call upon the Manager to show why this should not be done? A If you would give me a hypothetical case, I might answer it.

27434. Q You cannot conceive of a case where that would be desirable? A No.

27435. Q Have you had experience of mines ventilated by furnace? A No.

27436. Q Have you a theoretical knowledge of ventilation? A Yes.

27437. Q What do you think of the matter yourself? A I think first, upon the grounds of efficiency and economy, a fan is superior.

27438. Q Efficiency—do you mean regularly? A I mean efficiency of ventilation, and I may say that, as regards the quantity of ventilation, generally speaking it is better.

27439. Q The explanation that you give, then, is this—where more than twenty men are employed, they should have fans on all new mines; but, as to existing mines, you would leave the Managers until the Managers thought fit to make a change? A Yes.

27440. Q It has been suggested (No. 7) that waste workings should be absolutely sealed off, and surrounded by return airways, and I think you may leave the matter of sealing off out of the question? A I think that would be introducing a danger.

27441. Q Where would you have the outlets from these waste workings? A Opening into the return airways.

27442. Q Not opening into the intake? A That is prohibited by General Rule 1.

27443. Q You would have the outlets from the wastes and gobs opening into the return airways? A Yes, except in a safety-rail.

27444. Q It has been suggested (No. 7) that there should be a monthly examination and report by under-managers and District Inspectors, with the hydrogen flame? A I think that is impracticable. I made a test under these conditions, and I found that I could not carry it out.

27445. Q You tried to put the recommendations into actual work? A Yes.

27446. Q What is your opinion—why did it fail? A The hydrogen tube, when used on a mine in which the air is taken out and dust, gets choked after twenty or thirty minutes, and the result is useless.

27447. Q The test is only useful for special occasions? A Yes—and you cannot make a test with a hydrogen lamp where there is coal-dust. The value of a test with a hydrogen lamp is because the flame is not luminous, but if there is coal-dust, the flame becomes luminous, and you cannot detect the top of gas—you cannot see the top at all. Then, the hydrogen lamp is worked under tremendous pressure, and the men might turn the flame up too high.

27448. Q It would be a dangerous thing to handle, and there might be an explosion? A It is quite possible there might.

27449. Q A general rule of that sort, which ignores the conditions of different mines, would be useless? A Yes.

27450. Q The hydrogen lamp would not work where there is dust present? A Yes, I am quite sure of that point.

27451. Q What is your opinion of the present arrangements with regard to ventilation? It has been proposed—"A minimum of 500 cubic feet of air per minute to be provided for every horse, instead of 500, as at present?" A I think it is absurd. I tell you a man is no different. We had a district where 500 cubic feet of air was going this week we have had to increase it to 1,200 feet.

27452. Q Why? A On account of the yield of gas. Such a recommendation would operate against the safety of the mines.

27453. Q You have gone far above the requirements of the Act, because the requirements of the man required is? A Yes.

27454. Q Is that any objection to raising the minimum? A I think so. The word "adequate" means all requirements.

27455. Q In whose opinion should it be adequate? A Under present conditions, under General Rule 1, the Inspector has power to say whether the ventilation is adequate or otherwise, and, for the benefit of the mine, it would be wise to have it in this.

27456. Mr. Ritchie. Q How will a regulation to increase the quantity of air, to be supplied to each man, from 500 cubic feet to 500 cubic feet—as suggested by the Newcastle proposal—affect the better portion of the mine? A If you have adequate ventilation, you must have sufficient ventilation for all requirements.

27457. Mr. George Smith. Q Mr. Ritchie has mentioned to you the Newcastle suggestion, which is, that 500 cubic feet of air should be provided for each man and boy,—the Newcastle suggestion is to increase the supply of air for each horse to 500 cubic feet per minute? A Yes, I understand that.

27458. Mr. Ritchie. Q You say that it would be a source of danger if the proposal is agreed to,—I want you to explain to me how increasing the minimum quantity of air to be supplied could interfere with the safety of the mines? A I think it would be possible for a Manager to take refuge behind the minimum.

27459. Q Would it not be possible for a Manager to take refuge behind the minimum quantity now? A I think there should be no limit.

27460. Q How would it affect the safety of the mines? A I have given you a case where we had to increase the supply from 500 or 600 feet to 1,200 feet. I think it would be better to have in the word "adequate" I think that would be better for the benefit of the miners. If 500 cubic feet is sufficient, there is no need for more. You may require a small amount to-day, and to-morrow you may want more.

27461. Mr. George Smith. Q In Great Britain the word "adequate" is used? A Yes.

Witness—J. Griffin, 22 March, 1922

- 22483 Q And that provision has remained for many years? A Yes.
- 22483 Q Mr. Holbrook? Q How many men are employed at night in your mine? A Sixteen.
- 22484 Q The total ventilation is 400 000 cubic feet? A Yes.
- 22485 Q If the ventilation was governed by the number of men underground, you would only have 1,400 feet? A Of course, you must govern the ventilation by the conditions.
- 22486 Q The Act assumes that the ventilation is to be governed by the number of persons employed? A That seems to be wrong on principle.
- 22487 Mr. Bruce Smith? Q There is no minimum in Great Britain? A No.
- 22488 Q Simply, an adequate supply is required? A Yes.
- 22489 Q Here an amount is adequate supply, and the minimum fixed as well? A Yes; and 500 cubic feet are required for each man, and for, and horses.
- 22490 Q It is proposed to increase the supply for each horse to 500 cubic feet, and the supply for each man and boy to 200 cubic feet? A There is no necessity for the increase.
- 22491 Q Do you know of any reason why there should be any increase? A I know of no reason.
- 22492 Q It has been suggested (Mr. W.) that all doors should be self-closing? A I object to the principle.
- 22493 Q Why? A On the ground that, if you jammed all doors to be self-closing, you have no means against a man who leaves them open. In a mine, it is almost impossible to have doors self-closing, as they are blocked by pieces of coal and rubbish.
- 22494 Q You mean that the knowledge of a man that a door is supposed to be self-closing removes the responsibility? A Yes. That rule was submitted to us, and we objected to it on that ground; and the Department accepted an amendment we suggested.
- 22495 Q I take it that if in your opinion, if there are not self-closing, every door which a man opens is a guarantee to him that it has to be closed? A Yes.
- 22496 Q How do you find that rule work out? A We have good results.
- 22497 Q What do you do if a man leaves a door open? A We prosecute him.
- 22498 Mr. Holbrook? Q What do you do in a case where a door is blown open by a blast of air, and does not close itself? A I think that is improbable, but I think, if you do have a blast, you could not make it so that the door would shut.
- 22499 Q You might get a slight puff? A Generally speaking, a door will shut, but you cannot always accomplish it, with bits of coal and rubbish may prevent it. If a man passes through a door, the least thing he can do is to close it.
- 22500 Q Some men may be thinking about something, and leave the door open, and divert the current. Do you not think it would be a better security to have self-closing doors? A I think double doors would be an additional security. You are hardly think of a man going through two doors, and forgetting to shut both of them.
- 22501 Q Do you not think that self-closing doors are an additional security? A No, I do not think you can have doors self-closing. If you make a man close in his responsibility, then you will have no trouble.
- 22502 Q You have the human element to deal with? A With a little doors we have had good results. We have not had a case where both doors have been left open.
- 22503 Q Do you think they would have been left open if they had been self-closing? A I cannot say that.
- 22504 Mr. Bruce Smith? Q Do you think people would be so careless? A If they knew them to be self-closing, they would not take the care.
- 22505 Q Are your doors hung so that they close in? A Yes.
- 22506 Q They are self-closing? A They are not self-closing, but we try to hang them that way. It is possible that you may open one, and it will shut that system of its own accord.
- 22507 Mr. Holbrook? Q Have you many doors? A Oh, yes, a hundred doors.
- 22508 Q Would it be safe to say that there are no many doors in the Metropolitan as in any three average mines? A As many as in any three others on the coast.
- 22509 Q Your rule has been in operation for many years? A For thirteen or fourteen years.
- 22510 Q It is a good mine? A Yes.
- 22511 Q If the system of individual responsibility had not been a good one, would trouble have ensued before now? A Certainly.
- 22512 Q Has there been any trouble? A Practically none.
- 22513 Q Are you satisfied that a system of individual responsibility with regard to closing doors is best? A Yes, I think so.
- 22514 Q Have double doors been in use at the Metropolitan Colliery for a long time? A From all accounts, ever since it has been a colliery.
- 22515 Q Have you have been there? A Yes.
- 22516 Q You have not been forced to have double doors by the Department? A No, it was done before the Department suggested anything of the kind.
- 22517 Mr. Bruce Smith? Q It has been suggested (Mr. H.) that a weekly measurement of air should be taken in such mines? A I do not think that is necessary.
- 22518 Q Do you think it is probable? A Of course it could be done, but I know of some mines where a man would require two days to do it.
- 22519 Q Is it necessary? A No.
- 22520 Q Is there sufficient variation in a properly ventilated mine to make it necessary to have the test? A No. You have the lamp going round daily, and he is the man I would depend on.
- 22521 Q As to the direction of the air, you mean? A Yes.
- 22522 Q The men are not changed from their working places every week? A No.
- 22523 Q Where there is any cause for complaint in the mine, have you known of any breakdown as they put out in mine complaint, if anything is complained? A No, we never complaint.
- 22524 Q You do not think it necessary, and you do not think it probable? A No.
- 22525 Q Do check inspectors take place regularly in your mine? A I think we have had two inspectors on during the last two years.
- 22526 Q One a year? A We have had two inspectors in two years.

27022 Q Now, with regard to an extra supply of safety-lamps (Nos. 12) and their regulation, equal to one-third of the number of persons employed below ground, to be kept constantly in good order and ready for use. Has not intended was that they should be kept trimmed, but merely kept ready? What is your opinion as to the extra number? A It is difficult to make any hard and fast rule.

27023 Q How many have you, for 500 men? A We keep a reserve of 150 lamps.

27024 Q Does not there what are in full use. If both shifts are in the mine, you have 120 over? A We have had that number in stock, but lately we have run some of them to other mines.

27025 Q You keep a surplus of about a fourth? A Roughly speaking, a fourth.

27026 Q Do you think that a difference should be made with regard to mines where lamps are not used? Where, say, 500 men are employed, would it be reasonable to require them to have 120 lamps ready for use for reserve purposes? A I think the rule applies to one mine as much as it does to another, in the event of an accident.

27027 Mr. *Adair*. Q Do you mine worked with safety-lamps if 400 are supposed to be in use, there are always a number left in the lamp-room? A We generally have 50 lamps left each morning.

27028 Q Mr. *Adair*. The others are kept used the whole of the working day? A Yes.

27029 Q If the men work in two shifts, there is only a part of the day during which the whole of the lamps will be out? A Yes, you would have the night-lamps on the surface during the day.

27030 Q They would be valuable as a source of emergency? A Yes. There would be the lamps you would make for at once in the event of an accident.

27031 Q Do you not see the reason for making a distinction between mines where lamps are in use and mines where they are not? A I think that if you were to say that an adequate supply should be ready, that would meet the case. All details should be considered by local parties.

27032 Q You would leave it to the Inspector? A And to the Managers, to have an adequate supply ready.

27033 Q Now I come to the question of watering. It has been suggested (No. 10) that travelling and haulage roads and other places should be properly watered. The proposition is a little vague? A I object to it altogether—broadly.

27034 Q You object to the compulsory character? A I object to the principle of watering the roads.

27035 Q What are you doing at your mine? A We do not water, except in a few head-rod paths, for the convenience of the men.

27036 Q And yet yours is a dusty and noisy mine? A Very dusty and noisy.

27037 Q What prevention do you consider should be taken against a coal dust explosion in the event of an explosion of gas? A Our object is that prevention is better than cure. We take precautions, where dusts are free, and we see that within a radius of 50 yards everything is completely clear of dust and that the place is watered thoroughly.

27038 Q Is that an obsolete rule? A Yes. And we go on the other side of the end road.

27039 Q How do you get them? A I mean when the heading is extended by a pair of rods.

27040 Q Do you water with a spray? A We water with water under a pressure, with a pipe and hose.

27041 Q Do you water the roof? A Everywhere, the sides, the roof, and the floor.

27042 Q What is the effect of watering upon the roof? A In ordinary working places we have had trouble with the roof because of the water.

27043 Q Under what conditions do you fire shots—what explosive do you use? A We use a safety explosive—volunteers.

27044 Q Do you use gunpowder? A It is not allowed in the mine.

27045 Q How do you fire a shot? A Electrically.

27046 Q You have no flame? A We have observed no flame. We set all the timber in the locality, and we hang up a wet piece of lint or cloth to intercept the flame from a blow-out shot.

27047 Q Is this practice always observed? A Yes, by special rule. We remove all explosive matter when a radius of 50 yards—take it away altogether.

27048 Q With regard to watering, you do very little in the mine? A We water simply at the end of the shot.

27049 Q And the travelling road for the men? A Yes.

27050 Q You do not water the main road—the rope road? A No.

27051 Q Although it is dusty? A We do not water it.

27052 Mr. *Adair*. Q Have you an shooting in birds at the present time? A No.

27053 Q Have you had shooting in birds now you have been there? A No, not in the road.

27054 Q How do you know of the effect of watering in birds? A I have taken the water in, to see what it would do.

27055 Q Would it be practicable to water the back-rod in the Metropolitan mine? A No, we have had 51 miles of road.

27056 Mr. *Adair*. Q Have you a water supply? A We have a water supply.

27057 Q Where do you get the water from? A We have a dam. The supply is for ordinary purposes.

27058 Q Have you a supply which would enable you to water the roads? A No, we would require twice the water we have at present.

27059 Q Have you always had a good water supply? A We had to purchase water from Sydney six months ago on a rate of 24,000. We had to buy it up to tanks by rail.

27060 Q From your railway in the theory of watering becoming more widely believed in, or not? A No, it is being done away with in the dairy houses in England from what I have read.

27061 Q Name your authority? A The Imperial Inspector, Eyre, and H. E. Rickard and Henry Hall.

27062 Q Watering is being thought less of? A In Lancashire they are doing away with it, and are taking precautions, but we are doing here, at the end of every thing.

27063 Q You have experimented on the roof in the back-rod—was it dangerous? A Yes, it was—too dangerous for the men to go into the place and remove work.

27064 Mr. *Adair*. Q Have you ever made any calculation as to the cost of watering the Metropolitan Colliery—the cost of the piping? A Yes.

27065 Q Can you tell us what? A To install the plant the capital outlay would come to £12,500.

27066 Q What sort of a plant? A Just using wrought-iron piping, 4-inch down to 2-inch. That is the capital outlay, and the cost per year would total £2,500.

Witness—J. Jeffin, 23 March, 1908.

27532. *Mr. Bruce Smith* : Q. That is, assuming you had to lay water? A. No.
27533. Q. What would the \$25,000 be for? A. For the staff and labor to keep up the system.
27534. *Mr. Bruce* : Q. But the cost of the water? A. That would be outside the cost of the water altogether.
27535. *Mr. Bruce Smith* : Q. And you spent \$4,000 recently in getting water from Sydney? A. Yes.
27536. Q. Was it an abnormal year? A. It was during the late drought.
27537. *Mr. Anderson* : Q. Did you calculate the quantity of water that would be required? A. Yes, that is, allowing an ordinary creek for over 50 yards.
27538. Q. What would be the total quantity? A. 50,000 gallons daily.
27539. Q. Have you any idea where that quantity of water could be got from? A. I do not know a mine where we could build a dam; and, if you got that quantity of water in the pit, how are you going to get it out again? The fact is we could not do it.
27540. *Mr. Bruce Smith* : Q. Would you propose that the watering should be left to the Manager, and that, in the first place, the Inspector should have the power to require more watering if he thought fit; and, if the Manager objected, to refer the matter to arbitration? A. I would object to that. I would agree to the general principle of Rule 19.
27541. Q. What is that? A. That rule has reference to the provisions taken in the way of watering when doing that. I would agree to give the Inspector power to refer to arbitration the question of whether a mine is dry and dusty, and, therefore, whether it is necessary that the provisions set out in that rule should be taken.
27542. Q. You would not invest the Inspector with the power of ordering a Manager to do additional watering? A. I think you can accomplish the object you desire in that watering at all on the mine itself.
27543. Q. The Inspector would be aware of the difficulties in the way of watering, and of the cost.
27544. Q. What objection do you think there would be to his having the power, if he thought there was danger of ordering the watering, and thus referring the matter to arbitration in case of dispute? A. Why should I object?
27545. Q. What would be the objection? A. To watering throughout?
27546. Q. No, to the Inspector's having power, where he thought it necessary, to require a Manager to do the watering, and to refer the matter to arbitration if required? A. Do you mean watering throughout the mine?
27547. Q. Suppose the Inspector is dissatisfied with the watering done on the mine—you object it is insufficient to lay down any general rules? A. Yes.
27548. Q. Supposing the Manager had the matter left in his hands, and the Inspector had power, where he thought it necessary, to require more watering was not being done, to require more watering, and then you could allow the Manager to require that the matter should be settled by arbitration? A. I see no need for such a provision.
27549. Q. Whether people are used, do you see any objection to it? A. You have my idea. I say you can accomplish the object in another way.
27550. Q. On the principle that prevention is better than cure? A. It would not be fair for me to express an opinion as to whether the matter should go to arbitration, and I would rather not.
27551. Q. Do you not think such a provision necessary at all? A. I do not.
27552. Q. There is a recommendation (No. 14) that Managers should be compelled to give more time to the management of their collieries. Is it workable to lay down a limit and that limit as to how long a Manager should be on the mine each week? A. It is impracticable.
27553. A. The conditions would vary according to the mine? A. Yes.
27554. Q. How often do you get through the more important portions of your mine? A. Generally, once a week.
27555. Q. Do you see any objection, in any of the mines, to that being done? A. I think it is a question on which you cannot lay down any hard and fast rule.
27556. Q. Would it be injurious to you, if you were compelled to go through all the mine once a week? A. It would be impossible in certain cases.
27557. Q. You do not go through every place? A. There are some places I do not see once a month.
27558. Q. You may have one district requiring a lot of attention, and another district may not require so much attention. It is best to leave the matter to the Manager.
27559. Q. Do you think it would be a fair thing to require a Manager to go into a mine twice a week? A. It is better to leave the matter to the Manager's own judgment. If he is a conscientious man, he will do the correct thing.
27560. Q. I am afraid that you shrink the position of Manager. You give every man the credit of being alive in his day? A. You have a remedy under the present Act, if he is not.
27561. *Mr. Anderson* : Q. Is the Manager's responsibility and a sufficient check on his work? A. I would think so.
27562. *Mr. Bruce Smith* : Q. What would you say to requiring a Manager to go through his mine once a month? A. I would make into the matter alone.
27563. A. There is a proposal (No. 5) that all places, except prospecting drives, should have cut-throughs not more than 50 yards apart. Is that practicable? A. No; it is impracticable.
27564. Q. Can you lay down any distances for pillars which it would be well to put in all mines? A. No.
27565. Q. What is the extent of your own pillars? A. Fifty yards by 100—that is, cut-throughs every 100 yards.
27566. Q. Is that also necessary? A. I would not like to say it is unnecessary.
27567. Q. Is that the greatest length? A. That is the rule right through—50 yards wide and 100 yards in length.
27568. Q. You have some longer? A. We have some 100 yards long.
27569. Q. Is that necessary for the safety of the mine? A. I would not go so far as to say that we could not work the mine with cut-throughs at less than that distance, but what we have to think of is that we should get some work on the coal. There is the experimental strata to be considered, and even now we are continually being placed with pillars of that size. Pillars are constantly falling in.
27570. Q. You lose the coal? A. No, we get the coal, but we have to get it in another way.

27594.

27590. *Mr. Robertson* | Q What percentage of coal is left in pillars? A Twenty per cent. best, and 30 per cent. otherwise.

27591. Q What is the effect of these long lengths without sub-headers on the ventilation—is it detrimental? A There is nothing detrimental about it. If you have the air at your disposal, you can circulate 300 to 400 puffs as well as you like 125.

27592. Q What would be the effect of 30 coal cut lengths? A It is doubtful whether the mine would be profitable, because the length of the pillars would be less than their width. We should have to use very expensive gas and the coal would be simply decided to dust. The weight would come up, and the coal would crush the coal.

27593. *Mr. Bruce Smith* | Q That must be left to the Manager? A Yes.

27594. *Mr. Robertson* | Q Even with long pillars, how does the cost of timber at the Metropolitan Colliery compare with the cost of timber at other collieries? A I believe it costs on floor or on time more. In some of our places you cannot get through, because of the timber.

27595. *Mr. Bruce Smith* | Q What collieries are you comparing the Metropolitan with—Kilnashel? A

27596. A We have five times more timber than they have at Mount Kembla.

27597. Q What is the average diameter of the timber used in your colliery? A 11 to 12 inches in diameter.

27598. Q What is the diameter of the timber ordinarily used? A There is 9 inches.

27599. Q Do you find it necessary to have timber 8 inches in diameter? A Yes, once you saw the timber is broken the frames take thousands of them on.

27600. Q Do you think this is a matter which should be left to the management? A Yes.

27601. Q Is there any object in having cut through on the spot, excepting to provide for the safety of the mine? A No. It would be better for us to have cut through at two distances.

27602. Q It has been suggested (No. 18) that managers should be given to employees regularly on the means of transport. You have had some suggestions of that matter? A We carry that principle out.

27603. Q When did you begin it? A Three or four months ago.

27604. Q What has been your experience? A If you wish to show the men all the means of escape, you must make provision for it as an Act of Parliament.

27605. Q Why? A Some of the men do not take kindly to it.

27606. Q Some of them? A Three or four men out of our lot have complained.

27607. Q Do the others readily respond? A Most of the men to whom I have talked take to it kindly, and think it a new provision.

27608. Q You have not had much difficulty in the matter? A We put a danger board up at the ordinary travelling road, and there is no option for the men except to go as the way they are taken.

27609. Q Why did you put a danger board up? A We thought, perhaps, that some of the men would slip out by the ordinary road.

27610. Q What is the effect of putting a danger board up? A It is a breach of the Act to put it.

27611. Q You have not issued the voluntary order of these people? A, I think it is better to put a danger board up, and there is an end of it.

27612. Q What prevented them? A It was only in a few cases.

27613. *Mr. Robertson* | Q Did you show the men every way out? A No.

27614. Q Supposing you had chosen to travel the men out by every possible exit? A That would be impracticable.

27615. Q You instructed the men in an alternative road out? A Yes.

27616. Q Not in all? A No, I think one is sufficient, if you make them travel out by the return. It is too much to expect the men to travel out by the old roads.

27617. Q There is a suggestion made that the men should be shown the way out by all the roads? A That would be too drastic a provision.

27618. *Mr. Bruce Smith* | Q You are showing the men out by one alternative road? A One road from each district.

27619. Q Would that always be the road by which these men should go out in the event of an explosion taking place? A You could not tell that. That road might be travelled by an explosion.

27620. Q Is there not a danger then, by showing the men out by one road from a district, they might go by that road at a time when it would be the most dangerous for them to take? A There is that chance. But I think that the principle of showing the men out by an alternative road is a good one.

27621. Q Are there out, in fact, half a dozen places in each district in which explosion might take place which would render that particular road, by which they had been shown the way out, the most dangerous? A Yes.

27622. Q How many are you now as to a provision compelling the reporting of gas by means. That is under General Rule 4? A That is by the deputy. It is almost impossible to carry out that rule in an entirely safe manner, you would have to report the presence of gas in nearly every inch.

27623. Q What alterations would you propose in the rule? A I would make the rule read "Explosive gas," or "Accumulation of explosive gas." I would make that rule apply to mines using safety lamps, and, in all mines using naked lights, where no safety-lamps are used, every colour of gas should be reported.

27624. Q How would you make the rule read? A The rule would then read as follows—"A report specifying where," and I would insert "in the case of a mine worked with naked lights," and the rule would continue to read, "Wherever is inflammable gas, or any was found present," and I would insert "And in the case of a mine worked with safety-lamps, where noxious or explosive gas," and the rule would continue to read, "The conditions of the ventilation, and other details, if any," and so on.

27625. *Mr. Robertson* | Q But that would not get over the difficulty? A I take it that there is a difference between explosive gas and inflammable gas.

27626. *Mr. Bruce Smith* | Q Who is to judge? A If you get gas in the lamp, and it explodes, it is explosive. If you get colour, it is not explosive.

27627. Q Take the case where lamps are not used? A All gas should be reported.

27628. Q Would that require any alteration in the rule? A No, I think not, it reads, "where noxious or inflammable gas" is found.

27629. Q Would that be gas generally? A Just so.

Witnesses, Joliet, 12 March, 1905.

27029 Q There is an obligation on the part of the men, where lamps are not used, that gas should be reported? A Yes.

27030 Q Would you limit that obligation, in mines where lamps are used, to cases where only explosive gas is found? A Yes, in cases where there is explosive gas.

27031 Q Does that not leave it open to a person to say that he did not know that it was explosive gas, and, if any attempt was made to dispute a firm, it would be impossible to find the gas again? A The same thing applies now. You might find gas one moment, and get it removed afterwards and not find it.

27032 Q Suppose someone was present? A That would mean finding the gas.

27033 Mr. Jones Q Could you not introduce a percentage? A You can get 15 per cent with the ordinary rebate law.

27034 Mr. Robertson Q Is not the difficulty, not the reporting of the gas, but the withdrawal of the men after the gas has been reported, as being found? A That is the difficulty. If you report gas, you prevent the workmen going into that portion of the mine where the gas is.

27035 Mr. Jones Smith Q Does not depend on the book man? A We have had dozens of cases in which the man has reported gas to the deputy, and the deputy has not put it down in the book. The deputy has to find the gas himself.

27036 Mr. Robertson The deputy has to report what he has seen, and not what he has been told. We want to get over the difficulty of reporting every time gas is seen, in a group mine where it is known that gas comes from the roof.

27037 Mr. Jones Smith I understand that the mine means that it would be impossible to report every particular case.

27038 Mr. Robertson There is no difficulty in detecting the gas. We know it is quite possible to detect it.

27039 Mr. Jones You would have to have a staff of clerks to report every time it was detected.

27040 Mr. Robertson The difficulty is, how to get over the fact that you must not admit men into a part of the mine where there is gas.

27041 Witness Under this rule, the deputy has to report the gas, and you must allow a workman into a part of the mine if the deputy has reported that he found gas there.

27042 Mr. Jones Smith Q Is not that an invitation to exclude the reporting of gas from the book? A No, I would not say that.

27043 Q If the deputy were to see gas, he might not report it? A As a matter of fact, we cannot report gas every time we see it now.

27044 Q With regard to the larger mines in which lamps are used, you think the word "explosive" should be introduced into the rule? A I am in doubt whether the rule should not be made to read "accumulation of explosive gas." But say "explosive gas." I think that would be sufficient.

27045 Q You wish, instead of not reporting gas. Do you think it is at all necessary to make up further provisions, so as which men could report gas when they find it? A There is power under the Special Rules now to report it, I see no need for any further provision.

27046 Q With regard to the use of explosives in a mine you make a provision? A Yes.

27047 Q You propose to amend the present provisions, General Rule 15, par (5), 1-2, and to substitute in its place the following:

Under the plan for a mine of 50 yards has been cleared of material accumulations of fine coal, and so dirt, the roof and sides are then treated clear of dust, and the roof, sides, and floor thoroughly saturated with water, and when he is in possession of an order signed by the Manager authorizing him to fire a shot.

A, I would not allow shots to be fired unless the power was withdrawn by the Manager, and when these provisions are taken.

27048 Q You would not allow shots to be fired except by a person having the authority of the Manager; and you would require him to water the floor, the roof, and the sides, within a radius of 20 yards, and to clear away all dust. You need something before about your position of putting up because? A We have a net cloth placed in position to intercept the flame of a blow-out shot, and I think it is a good thing, and should be made general.

27049 Mr. Robertson Q That rule is in force in your colliery now? A Yes.

27050 Mr. Jones Smith Q You approve of the prevention of gas powder as explosive? A I approve of its abolition.

27051 Q And the introduction of the other permitted explosives? A Yes, in mines where safety lamps are used. In all dry and dusty places.

27052 Q There has been a proposal that men should be withdrawn from a mine when there is a likelihood of the roof falling? A It is impracticable to withdraw men, and keep admitting at work. What I mean to say is that, where you have finished the pillar working, it is a good mining position to take out the timber immediately. If the roof does not fall, you take out the next shot of coal. I do not see any necessity for withdrawing the workmen from a district until the roof has fallen. We have four or five late working days.

27053 Q You do not always know when it is coming down? A You get good warning. If a deputy warns the men, and heard the roof working, he would take the men out.

27054 Q The how long might it be working? A For a week, or two weeks.

27055 Q Does it always get so late? A Perhaps you get so late.

27056 Q Mr. Robertson Q Is it not possible that some portions of the roof would come down, unless you took away other portions of the coal? A I have known roofs stand for ten years.

27057 Q If the men had been withdrawn — A They would have to stop out for ten years.

27058 Mr. Jones Smith Q You have had a good experience of falls in all parts of the mine, where the roof has held up for a week? A Yes.

27059 Q Does a fall gradually over a large area? A It comes, like a rule, it comes down in some down in small pieces. Then you get a heavy fall. It comes down to work, and then reaches its climax.

27060 Q Does what you did your largest fall extend? A Perhaps 20 yards by 30 yards. I do not mean that it all came down at once.

27061 Q You mean approximately at once? A I have known 500 or 600 square yards to come down.

27062 Q I mean the largest area that has come down, but not instantly? A I should say 10 yards square.

27663. Q Were you seen 10 yards square come down like one block of stone? A No; in small blocks, and eventually in a fairly large body.
27664. Q Do you think it probable that in the Mount Kemble Mine a roof extending over an area of 40 yards square came down on one block in half a second? A Oh, no.
27665. Q Do you think, if anyone were to say that it was possible—would you think it at all probable? A No, I do not think so. I never heard or thought of such a thing, and I have seen a good many falls.
27666. Q Taking on any mine where a roof has held up for a month and has not come down. What did you think on about the biggest period it would take to come down? A If you commence from when the roof begins to work, it might be a matter of hours.
27667. Q What is the shortest period? A I have seen the roof come down in a quarter of an hour, and I have seen big falls before the men as they were withdrawing the timber.
27668. Q Do you think it probable that all people square could come down so completely in one block that the men would not have sufficient time to get through? A I would not think that.
27669. Q You do not think it at all feasible? A I do not think it at all probable.
27670. Q What would you think of the theory of a wind-blown depending upon the hypothesis of all people square coming down in half a second? A I would not entertain it.
27671. Q You would not entertain it? A I would not consider it. We have falls every day which stir up the dust.
27672. Q To what extent? A Large falls, but they break gradually.
27673. Q How long do they take to come down? A The matter of a quarter of an hour.
27674. Q Is there any wind-blown from them? A We had one the other day.
27675. Q To what extent? A There is still possible, but it breaks gradually.
27676. Q Was there any wind-blown from it? A Yes.
27677. Q What did it do? A You would not see your head in front of you, it stirred up the dust.
27678. Q Was anybody hurt? A No.
27679. Q Were there any horses hurt? A No.
27680. Q Did it put any lights out? A No.
27681. Q Were there any people in the immediate vicinity? A No.
27682. Q Were you there? A No, I was not there.
27683. Mr. Jaffin. Q You had no lights to blow out? A No mixed lights.
27684. Mr. Jaffin. Q He was not even there himself?
27685. Mr. Jaffin. Q What is your opinion upon the relative positions of Manager and what we called agents? A I think that agents should have some qualifications.
27686. Q Some qualifications as to being, and not a qualification as a commercial man? A I think, if he takes an active part in carrying management, he should have some qualifications as a mining man.
27687. Q What powers vested in the way of spending money? A As far as I am concerned, everything which required to be got.
27688. Q Supposing not emergency cases that require the spending of money instantly, have you the power to spend it? A Yes.
27689. Q Do you think you should have? A Yes.
27690. Q Do you think the Manager should be required to wait until the agent visits the place to consult him? A No.
27691. Q Would you consider that a Manager was a Manager in fact if he had to do that? A A Manager should have power to do what you say, he should have power to do whatever he thinks is necessary for the safety of the mine.
27692. Mr. Jaffin. Q If the Manager said it was necessary to have a fan costing \$50,000, do you think he should have the power to order it? A I think anything is possible.
27693. Mr. Jaffin. Q I said that the Manager should have the power as a matter of emergency? A I mean a case occurring where some accident happens, in fact, the Manager would be in blame if he did not take such a power.
27694. Q What qualifications were you referring to just now when you were referring to agents? A It is a difficult thing to say what qualifications they ought to have.
27695. Q Are you referring to the business of coal mining generally? A I may tell you that I had the experience of the running of a coal mine in the Northern district after a large fire. After carrying on for two days I thought it became necessary to call a doctor. Before doing so, I had previously to call on Mr. Robertson, Mr. DeLara, Mr. Johnson, and Mr. Jelen.
27696. Q You had permission to call them in? A They were good enough to come and consult with me, and we decided to call down the mine on the only practical method of dealing with the fire. A fortnight after a letter was sent to me from an agent, who had no qualifications, who stated that he could have done the work of seeking it down for the cost of \$50.
27697. Q What was his position,—was he the agent for your mine? A I do not know the man.
27698. Q What have you to complain of with regard to him saying that he would do the work— (Interposed.)
27699. Mr. Jaffin. Q When did he say this? A He sent the letter to the secretary of the company. If the company had been weak enough to allow him to do the work, he would probably have lost ten or twelve men.
27700. Mr. Jaffin. Q That man may have been the agent of your mine, and may have done that on the death of a competent Manager? A There is no danger to be apprehended from a man who knows his business. It is when there are men who do not know their business that there is danger.
27701. Q Where an agent has power over and above the Manager he should be qualified? A Yes.
27702. Q Otherwise he should not have the power? A No, he should not.
27703. Mr. Jaffin. Q There would be nothing to prevent the directors appointing up a man, even if the Manager did not think fit? A I hardly think they would do that.
27704. Q How can you interfere with the established right of owners to do anything they like in the way of appointing their own kind men? It may be a matter of experience, but they have the power of veto? A The Act was never intended to apply to cases of that kind.
27705. Mr. Jaffin. Q Have you anything else to suggest? A That in view of the fact that, under General Rule 12, if you report gas, unless that gas has cleared away, persons prohibited from going close to the district—that might be recalled.

(Hence—J. Nelson, 20 March, 1900.)

27704. Q What do you propose? A I would propose that no shots should be fired within a radius of 100 yards, if gas is reported to be present.

27705. Q Not until it has cleared away.

27706. Q You are not proposing that the electric apparatus should be used under compulsion? A I think it should be safety lamp mine.

27707. Q Where gas is known to have accumulated, and has not cleared away, is any lantern for some time?

A You may have a fall in one of your loads, perhaps 50 yards long. The load is full of explosive gas, and you cannot get in to clear it out. You have to dump a place behind it.

27708. Q In the meantime you must wait that long to a distance of 100 yards away? A Yes.

27709. Q Have you anything else to suggest? A In the case of a dry and dusty mine, in which water would appear on the roof at the least, it is provided that no shots shall be fired unless the explosive is used with water or other substance so as to prevent it from collecting in gas or dust. I would suggest the addition of the words "or that no shots should be fired until after the persons ordinarily employed have left the mine."

27710. Q Am I permitted to enter the mine for 10 yards and take other proceedings? A Yes, and I would suggest, as a mine where you cannot enter, the addition of the words "or until after the persons ordinarily employed have left the mine."

[The Commission, at 4 p. m., adjourned until 10 o'clock on the following Tuesday morning, at No. 2, Dorset Court, King-street.]

TUESDAY, 19 MARCH, 1900, 10 a.m.

[The Commission met at the No. 2 District Court, King-street, Sydney.]

Present:—

C. H. B. MURRAY, Esq., D.C.J. (PRESIDENT)

D. A. W. ROBERTSON, Esq., COMMISSIONER | D. MITCHELL, Esq., COMMISSIONER.

Mr Bruce Smith, Barrister-at-Law, instructed by Mr Wood, Crown Solicitor's Office, appeared on behalf of the Crown.

Mr A. A. Ashmore, Chief Inspector of Coalmines, assisted Mr Bruce Smith.

Mr A. A. Lyneble, Solicitor, appeared on behalf of—

- (1) the representatives of deceased miners, widows, &c. (next of kin of the applicants);
- (2) the employees of the Mount Kembla Colliery (miners, widows, &c.), and
- (3) the Australian Colliery Employees' Association (the Southern Miner's Union).

Mr C. G. Wade, Barrister-at-Law, instructed by Messrs Currie and Barry, Solicitors, was present on behalf of the Mount Kembla Coal and Oil Company (Proprietors of the Mount Kembla Mine)

[Mr J. Garlick, Secretary to the Commission, was present to take shorthand notes of the evidence and proceedings.]

Mr W. HUMPHREY previously sworn, was recalled and further examined, as under:—

Re-examination by Mr Wade:—

27711. Q I understood past evidence to be that there was a gas explosion on the 4th Right roadway? A Gas came from the 4th Right, and there was a gas explosion on the rope road toward and outward from that point.

27712. Q Where—where is the initial point of the explosion? A Somewhere near to the junction of the travelling road with that road that comes from the 4th Right shaft.

27713. Q Then you put it on the 4th Right roadway? A Yes.

27714. Q And which side do you say of the No. 1 travelling road—in the gas hole or the rope road side? A Oh, neither side, I should say it was ignited somewhere on the travelling road, but as to which side—whether the gas hole or the rope road side—I could not say.

27715. Q What do you consider was the force? Did the gas come out gently do you think? A I think so.

27716. Q No force, no rush? A No rush.

27717. Mr. Hume? Q Do you say you think the explosion occurred somewhere on the travelling road? A I think the gas was ignited at that point.

27718. Mr. Robertson? Q On the travelling road? A Somewhere on the travelling road, yes.

27719. Mr. Wade? Q Look at the map. There is the travelling road and there is the rope road. You will not say whether it was actually on the travelling road or not, but it was somewhere on that roadway?

A Yes, but I will say that I think it is probable that it was ignited on the travelling road.

27720. Q Do you wish to draw a distinction between the ignition and the explosion? A Well, I do not think there was much explosion until it got on to the rope road, where there was dust, but there was inflammation before it reached the rope road.

27721. Q Where was the first explosion? A The explosion proper would commence on the rope road.

27722. Q At what point? A Somewhere about the junction of the 4th Right road with the rope road.

27723. Q You say at the junction? A Well, I will say at the junction. By that time I think it would have got into the dusty part of the road.

27724. Q Did you notice the cause down that had been hanging between the travelling road and the rope road? A Yes, I noticed the remains of one.

27725. Q In the 4th Right? A In the 4th Right.

27726. Q It across the rope road and the travelling road? A Yes.

27727. Q Where did you find that? A I noticed part of it hanging on the stretch—a part of the remains.

27728. Q On its support? A On its support, but I did not find the other part of it though.

27729.

(Sess.—J. DeWitt, 22 March, 1905.)

27704. Q What do you propose? A I would propose that no shots should be fired within a radius of 100 yards of gas as reported to be present.

27705. Q Not until it has cleared away.

27706. Q You are not proposing that the electric apparatus should be used under compulsion? A I think it should be safety lamp mines.

27707. Q Where gas is known to have accumulated, and has not cleared away, it may last for some time?

A Yes, may have a fall in one of your beds, perhaps 50 yards long. The bed is full of explosive gas, and you cannot get in to clear it out. You have to draw a place better in.

27708. Q In the meantime you must wait that being to a distance of 100 yards away? A Yes.

27709. Q Have you anything else to suggest? A In the case of a dry-dust dusty mine, in which undergird would require the roof in the front, it is provided that no shots shall be fired unless the explosive is used with water or other substance, so as to prevent it from collecting in gas or dust. I would suggest the addition of the words "so that no shots should be fired until after the persons and newly employed have left the mine."

27710. Q At present you water the mine for 10 yards and take other precautions? A Yes, and I would suggest, in a mine where you cannot enter, the addition of the words "or until after the persons ordinarily employed have left the mine."

[The Commission, at 4 p. m., adjourned until 10 o'clock on the following Tuesday morning, at No. 1, Durran Court, King-street.]

TUESDAY, 19 MARCH, 1905, 10 a.m.

[The Commission met at the No. 1 District Court, King-street, Sydney.]

Present:—

C. H. B. MURRAY, Esq., D.C.J. (PRESIDENT)

D. A. W. RICHMOND, Esq., COMMISSIONER | D. BITCHIN, Esq., COMMISSIONER.

Mr Bruce Smith, Barrister-at-Law, instructed by Mr Wood, Crown Solicitor's Office, appeared on behalf of the Crown.

Mr A. A. Ashmore, Chief Inspector of Coalmines, assisted Mr Bruce Smith.

Mr A. A. Lyneall, Solicitor, appeared on behalf of—

- (1) the representatives of deceased miners, widows, &c. (victims of the explosion);
- (2) the employees of the Mount Kembla Colliery (miners, widows, &c.), and
- (3) the Deacons Colliery Employees' Association (the Deacons Miners' Union).

Mr C. G. Wink, Barrister-at-Law, instructed by Messrs Corbin and Barry, Solicitors, was present on behalf of the Mount Kembla Coal and Oil Company (Proprietors of the Mount Kembla Mine).

[Mr J. Garlick, Secretary to the Commission, was present to take shorthand notes of the evidence and proceedings.]

Mr W. HUMBLE previously sworn, was recalled and further examined, as under:—

Examination by Mr. Wink.—

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27712. Q Where—where is the initial point of the explosion? A Somewhere near to the junction of the travelling road with that road that comes from the 4th Right shaft.

27713. Q Then you put it in the 4th Right roadway? A Yes.

27714. Q And which side do you say of the No. 1 travelling road—in the coal side or the rope road side? A Oh, neither side, I should say it was ignited somewhere on the travelling road, but as to which side—whether the coal side or the rope road side—I could not say.

27715. Q What do you consider was the force? Did the gas come out greatly do you think? A I think so.

27716. Q No force, no rush? A No rush.

27717. Q No flame? Q Do you say you think the explosion occurred somewhere on the travelling road? A I think the gas was ignited at that point.

27718. Q Mr. Deacons? Q On the travelling road? A Somewhere on the travelling road, yes.

27719. Q Look at this map. There is the travelling road and there is the rope road. You will put up whether it was actually in the travelling road or not, but it was somewhere on that roadway? A Yes, but I will say that I think it is probable that it was ignited on the travelling road.

27720. Q Do you want to draw a distinction between the explosion and the explosion? A Well, I do not think there was much explosion until it got on to the rope road, where there was dust, but there was inflammation before it reached the rope road.

27721. Q Where was the first explosion? A The explosion proper would commence on the rope road.

27722. Q At what point? A Somewhere about the junction of the 4th Right road with the rope road.

27723. Q You say at the junction? A Well, I will say at the junction. By that time I think it would have got into the dust part of the road.

27724. Q Did you notice the canvas down that had been hanging between the travelling road and the rope road? A Yes, I noticed the remains of one.

27725. Q In the 4th Right? A In the 4th Right.

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27727. Q Where did you find that? A I noticed part of it hanging on the stretch—a part of the

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27728. Q On the support? A On the support, but I did not find the other part of it though.

27731.

27705. Q Did you see any other curves? A I saw other curves, but I really could not say whether it belonged to that date.
27706. Mr. Moore | Q By the stretcher you mean the horizontal piece? A Yes, the head piece for it to hang from.
27707. Mr. Wade | Q Now, there is another narrow door on the path-ledge between these two landings on the outside side of the 4th flight? A Yes, I did not see that.
27708. Q How do you mean you did not see it, did you see where it had been? A Yes, I think I saw where the stretcher had been placed near the end.
27709. Q And the curves was gone? A I think so, so far as my recollection carries me.
27710. Q We have been told that that curve was found in the No. 1 rope road, on the outside side? A Yes.
27711. Q Supposing it was, how do you account for its getting there on your theory? A It shows that there was force that drove it from the travelling road towards the rope road.
27712. Q What force? A That force might be the action of gas, there would be a certain amount of force in it.
27713. Q If there was no explosion with the action of gas, would you expect it to travel down there? A What to travel down?
27714. Q The action of gas on the floor? A If there was any explosion.
27715. Q Supposing there was an ignition of gas only? A There would be a certain amount of force in it before it really got to the dusty part, and therefore anything in its path, like a narrow door, would naturally be blown on the direction of the rope road.
27716. Q Would not you expect to find signs of force on the stairs in that case? A Well, yes, I suppose I would.
27717. Q Then if the curve was proved to show no signs of force, would that interfere with your theory? A No, it would not.
27718. Q Not at all? A I think not.
27719. Q Why? A Because it is evident enough that there are certain things burnt and other things lying about by me not burnt. It is not possible that the curve may be in fact damp, and in that case it would not be likely to show any sign of fire.
27720. Q Now, when in your mind light, can you tell us about that? A Yes, in my opinion the light must probably in start it was the light of Pascal, who was travelling along the travelling road, and whose body was found some considerable distance further east.
27721. Q And you think that Pascal was able to travel something like a quarter of a mile? A I think he has done so.
27722. Q Do you think it was damp on the 4th flight road? A There was certainly water going from the travelling road up to the great cage.
27723. Q Do you think the dust was damp? A No; there was dry dust on the travelling road opposite that road end.
27724. Q Did you ever know of a case before, in your reading or experience, of a man who started an explosion like that being able to travel nearly a quarter of a mile afterwards? A No; but I have known of a case where the person who started the explosion lived for some time afterwards and did travel some distance.
27725. Q But how far,—what is the farthest you have heard of a man travelling after he started an explosion? A In the most I am speaking of, he was found 40 yards away from the place where we thought the explosion had taken place, but he may have travelled that distance several times over.
27726. Q Nevertheless, and desirable you mean? A Yes.
27727. Q For what purpose? A Well, we have evidence that the man lost his reason for the time being, and was demented. I think you know the case, George Hindmarsh, at Dudley. That man was found with his teeth sharpened in his hands, showing that he must have lived and have done something after the explosion.
27728. Q However, that is the farthest you know of a body being found from the initial point of the explosion, about 40 yards, that person being the cause of the explosion? A Yes, a man may be burnt by igniting gas and still be able to travel some distance.
27729. Mr. DeLoach | Q His light would be blown out by the explosion, yes; but he had a straight road to travel on.
27730. Q That had not be a very difficult road to the No. 1 flight,—had not he to travel over tumbled-up steps and hills? A Yes, I think he had tumbled-up steps to travel over there.
27731. Q And talk of smoke? A The bill of smoke may not be so much down at that time.
27732. Q They would be shortly short? A Yes, it would not take long to complete the whole destruction.
27733. Q How Pascal got hurt and a half after the explosion? A Yes.
27734. Q So that the full must have occurred between the explosion and the finding of Pascal's body? A Oh, yes, but the few minutes between the ignition and the full taking place would admit of his getting damaged, I think.
27735. Q But he would not travel that half a mile, or quarter of a mile, in the dark in a few minutes? A Well, that is my opinion. I have thought it so. I think that is the likelihood light to start it.
27736. Mr. Wade | Q You admitted that the light would be blown out, if it was the initial cause? A By the explosion,—yes.
27737. Q Now, the after-damp, the carbon monoxide, would soon be coming after him? A Yes, in a few minutes, I suppose.
27738. Q And he would not travel very fast in the dark? A Well, it depends, a man who is surprised like that would travel, probably, as fast as he could run.
27739. Q In the dark? A Yes, that is common enough.
27740. Q And do not you think he would have a very good chance of being overtaken by the carbon monoxide? A I think he certainly was.
27741. Q Now tell us got to the ——— (interrupted)? A Not till he got to where he was found.
27742. Q All the shrapnel between the rope road and the travelling road, from the 4th flight to the 5th flight, were blown out, or most of them were? A How do you mean blown out? They were displaced towards the travelling road.

Trans.—W. Hamble, 17 March, 1935.

27171. Q Yes. Now, if Pansell was in the travelling road, and in the gas, the explosion, if it took place at the 4th Right junction, would be almost instantaneous? A The question of gas would.
27172. Q The question of gas from the light on the travelling road would be followed almost instantaneously by the explosion in the rope road at the 4th Right? A Well, there would be some little time.
27173. Q What time, it would be less than a second, would it not? A No, I should say it would take several seconds.
27174. Q Now, would not Pansell be actually in the middle of it? A Well, he certainly was least by the gas.
27175. Q Would not he be only a few yards from the lighting point at the time when the explosion took place? A No, I think he would be further away than that, but how far I cannot tell.
27176. Q Only the distance he would travel in a few seconds at the speed? A Well, it is a question whether the other lamp would reach him.
27177. Q I am not talking of after-damp at all,—I am talking of the explosion, the flame? A I think he would have been, how far I could not say, but there would certainly be some time during which he could rush away from the gas.
27178. Q The explosion would travel a good deal faster than he would? A Yes.
27179. Q It would be not past the 4th Right before he got there? A Yes, along the rope road.
27180. Q And do not you think you would expect to find some indications of injury or broken timbers, or something of that sort, if he had been in the centre of them on the 4th Right? A No, it is somewhat observed that there is the first amount of damage done at the point of ignition.
27181. Q That he has gone away from the point of ignition? A Yes.
27182. Q And the explosion has taken place between the junction of the 4th Right and the No. 1 rope road? A Yes.
27183. Q Well, there was great force at that, was there not? A There was not great force on the travelling road.
27184. Q Did not you find that shock at the 3rd Right handed right down? A That is on the rope road.
27185. Q I am not talking of the rope road? A I am talking of the explosion at the junction of the 4th Right and the travelling road.
27186. Q You talk sometimes of suspension and sometimes of an explosion. The explosion, you say, took place at the junction of the 4th Right and the rope road? A Yes.
27187. Q There would be evidence there, would there not? A Yes.
27188. Q Did not you have great evidence in the rope road? A Yes, I saw several timber throwers about.
27189. Q Anything else? A That shock you are speaking of, and several rail girders that had been supporting the road.
27190. Q Do you think that these things showed great violence or force? A Yes.
27191. Q Do you think that that shock that travelled down the rope tracks displaced these stoppings? A Yes.
27192. A Now, do not you think that Pansell must have been right in the track of it? A Well, he certainly was in it, as proved by his body.
27193. Q As proved by his body? A, As proved by the position in which his body was found. He was in the track of it, no doubt, but — (interrupted).
27194. Q Do you mean to say that the mere sagging of his lamp would be quite consistent with his having been in the track of the explosion? A Well, I think that there were others that were very close.
27195. Murre went about the mine. I want to know about him? A Well, I think so.
27196. Q When did you first come to that conclusion, about the lighting point being Pansell's lamp? A Shortly after my last visit to Kamble.
27197. Q Where was that? A The last visit was on the 1st of September.
27198. Q Then you had come to some other conclusion as before that, had not you? A Well, I came to a partial conclusion as before we had finished the construction of the mine, but I had to modify that.
27199. Q What was that? A That was that the system had started on the first right hand heading (between the No. 1 Right heading).
27200. Q What the force? A Yes.
27201. Murre: Q That was Murre's light? A Yes.
27202. Murre: Q When did you come to that conclusion about the force of No. 1 heading? A I think on the Monday morning, the 4th of August.
27203. Q Did you arrange all the indications of force and the direction of force in the neighbourhood of Murre's body? A Yes, I think so.
27204. Q And had not you been along the 4th Right road on the 4th August, and the No. 1 rope road? A The 4th Right road?
27205. Q Yes, the road into the gas? A I had been in that 4th Right road on the Saturday night.
27206. Q And you were on Monday too? A But not until after I had left the No. 1 Right heading.
27207. Q When did you first come to the conclusion that your idea of the explosion working in the face of No. 1 Right was not correct? A Well, two or three days after, while we were at Kamble, before we finished our inspection on the 4th of August, I came to the conclusion that that point did not reconcile itself with the whole of the facts.
27208. Q When did you first come to the conclusion that the 4th Right was the originating point? A Soon after I made my last inspection on the 1st of September.
27209. Q Do I understand you had formed no conclusion at all when you left in the middle of August? A I had not finally made up my mind.
27210. Q What was your mind then? A I was hovering for a part of the time between these two points.
27211. Q But you had given up the force at that time? A No, I say simply that I had formed the opinion that the No. 1 Right face was the igniting point; but a few afterwards I gave it up.
27212. Q Was your old you held that? A I did not hold any pronounced view.
27213. Q Whether it was pronounced or not, what was your view? A My view was that the 1st Right (between the No. 1 Right face) did not mean in the whole of the force, and that the 4th Right was completed in a great deal more than the 1st Right, but I say I had not finally made up my mind until after I had inspected on the 1st of September.

27518. Q Did you discuss the question of the 4th Right with Mr. Atkinson? A I did.
27519. Q Did you tell him what you had seen or found? A With one exception, I did.
27520. Q What was that? A I saw 1 per cent of gas on the hydrogen flame, which, I am sorry to say, I did not tell Mr. Atkinson of.
27521. Q When did you think of that? When did you come to the conclusion that you had not told him about it? A I only discovered last week, when I was going over notes, that I had not told him.
27522. Q But you told us in the two last Thursday that you spoke of it as soon as you came down from the hill, and that Mr. Atkinson was there? A Did I say that?
27523. Mr. Brown Smith: He said he thought Mr. Atkinson was there.
27524. Mr. Hester: I think he said that he thought Mr. Atkinson was the next likely person he would mention it to, and that, most likely, he did so.
27525. Mr. Brown Smith: Q You have your original note here? A I have.
27526. Q Is your note book? A In my notebook.
27527. Mr. Wade: Q Do I understand this, that on the 4th of August Mr. Atkinson went up close to the good edge with you? A I said I thought he did. I am satisfied now that he did not.
27528. Q What has happened since Thursday to change your mind? A Well, it is not a change of mind.
27529. Q It is a change of opinion? A Last week I was not positive about his being there. I saw my shot, having re-remembered the witness, I do not think he was there.
27530. Q Did not you say that Mr. Atkinson gave you a light up to the face? A I said I thought it was possible that Mr. Atkinson accompanied us up there with the electric lamp; I am now satisfied he did not.
27531. Q Did you speak about it when you came down? A Well, I have no recollection of it. I remember coming down and making my note-writing down and making my note in the note-book on the travelling road, but whether — [Interupted]
27532. Q I am asking you: did you speak about it when you came down from the good edge? A I say I have no recollection of having spoken of it.
27533. Mr. Hester: Q You got to "but whether"? A But whether I spoke to Mr. Atkinson then about it or not I cannot say. I am inclined to think now that I did not.
27534. (Mr. Hansen's original note book, in which he made memoranda while on the mine, was then handed to the Commission by Mr. Brown Smith, who showed to the Commission the note made as to the finding of gas on the 4th of August.)
27535. Witness: That note was made immediately after we came down on to the travelling road.
27536. Mr. Hester: Q Were you with Mr. McGonish? A I was. I lay alongside of him. We had to lie on the stones. I lay alongside him, and watched the lamp, and saw it just as well as he would be able to see it.
27537. Mr. Hester: Q What you have put down here is really what you saw yourself? A Yes.
27538. Mr. Wade: Q Do you say you never thought of referring to this during all your discussion with Mr. Atkinson? A I never thought of making mention to Mr. Atkinson about the 1 per cent of gas. Whether I considered that he would know of it I do not know, but I never mentioned it.
27539. Q How could he know of it as was not there? A Well, Mr. McGonish and he had some talk, I understood, about the amount of gas in the mine.
27540. Q Did you hear them talk? A No, I did not.
27541. Q What do you base that statement on — on what you have heard, or what you have been told? A What I have been told by Mr. Atkinson.
27542. Q Did not he say what part of the mine he was referring to? A He did not say. Mr. McGonish was sitting here if he would give him a copy of the gas findings.
27543. Q Yes? A That is all.
27544. Q Did Mr. Atkinson never tell you that one difficulty in the way of his theory was that he could not find gas in the 4th Right? A Yes, I think he has told me that.
27545. Q Do you say it never occurred to you then to tell him this? A It did not; and I am sorry to say I cannot explain it.
27546. Q Did not you say this on Thursday (your 20963) in answer to Mr. Brown Smith, —
I am almost certain Mr. Atkinson was close behind, because by half the electric lamp, and we put on my hydrogen flame lamp before we got to the point of finding. Because we thought the oxygen was either exhausted in going up to the place, and Mr. Atkinson followed us very closely to give us light?
- A Yes, well, I thought that last week.
27547. Q Is that correct? A It is not correct, as applying to that time.
27548. Q As to that time? A As to that time.
27549. Q Did he follow you up and give you light? A At some later period, yes.
27550. Mr. Brown Smith: Mr. Wade is constantly talking about Mr. Slaughter's only meeting place at the evidence, now I call upon Mr. Wade to read the whole of this.
27551. Mr. Wade: Q Is it correct that Mr. Atkinson followed you very closely up to give you light? A No, not on the Monday night.
27552. Mr. Wade to Mr. Brown Smith: Which part of the evidence do you want me to read?
27553. Mr. Brown Smith: "He you came up to the stone?"
27554. Mr. Wade: (Reading from gas 20963)
"Q Do you come up to the stone? A Yes, up to the edge of the stone. I do not suppose there was even five inches of gas on the stone, but he was close by, I think."
27555. Mr. Brown Smith: "I think."
27556. Mr. Wade: Q Well you say that Mr. Atkinson was not there? A I will say that he was not there on the Monday night.
27557. Q Then it is not a question of thinking at all, you will say he was not there? A He was not there on the Monday night.
27558. Q Then how do you say now he was away? A About 30 or 40 yards away.
27559. Q Then he could not possibly have given you any light? A No, no.
27560. Q Did you go up to that good edge with Mr. Robertson? A No. I remember Dr. Robertson being on the travelling road along with the rest of the party, but I do not remember giving up to the good edge with him.

Wheaton-W. Smith, 22 March, 1906.

27425. Q Do you remember the lights going out? A I remember some of us required our lights.
 27426. Q Then they must have gone out; did yours go out? A No; I saved my light on each occasion.
 27427. Q Who was with you at that time? A I could not say. I was there several times, and each time with different groups of men.
 27428. Q On the 24th of August? A On the 24th of August I only remember McElwee and I being there.
 27429. Q Were you only there on one occasion on August the 24th? A That is so.
 27430. Q Then, when you made any test on August the 24th, Mr. Atkinson was not near you—was not within 20 yards? A No.
 27431. Q Did you hear McElwee speak about the result of the test when you came back from the gas edge? A Well, we certainly spoke about it, but what was the substance of it I cannot tell. I think we must have agreed, otherwise there must have been some argument afterwards.
 27432. Q Surely they asked you what you heard, after you came back? A No.
 27433. Q They did not ask you, and you did not tell them? A I did not.
 27434. Q Did not you think it was a very important discovery that you had made? A Not very important.
 27435. Q Did you think it important? A Yes, I thought it important.
 27436. Q And the next were waiting for information of what you had found? A No, the next had been there before we arrived, and, naturally, they had seen something; and they invited us to go up, and McElwee and I went up.
 27437. Q Did they tell you what they had seen? A No, they did not.
 27438. Q The way, "Naturally they had seen something"? A No; I say naturally they asked us to go up and see.
 27439. Q Did they tell you what they had seen? A No.
 27440. Q Did they ask you to go and look? A Yes.
 27441. Q Did they tell you they had found black damp? A I do not remember.
 27442. Q Did they tell you they had found black damp only? A I do not remember.
 27443. Q Is this correct (reading from paragraph 27322)? "Q Well, when you had found that 1 per cent. of gas, did you report it when you came down to the others? A Yes, it would be spoken of." A It is likely it would be spoken of, but I cannot remember it. I do not know whether McElwee did; but I cannot remember speaking of it.
 27444. Mr. Bruce Smith: He says (paragraph 27322). "I cannot swear to it, because I have not it in my notes."
 27445. Mr. Wade: Yes. Then there is this question (paragraph 27322): "Did you say so?" and the answer was—"I am certain we would speak of it to some of the party; and there would be no one more likely to be told than Mr. Atkinson."
 27446. Mr. Bruce Smith: He is only speaking of a method there.
 27447. (Witness:) I am satisfied, now, that I did not even mention it to Mr. Atkinson—and I certainly would not have mentioned it to anyone before mentioning it to him, and therefore it has not been spoken of by me.
 27448. Mr. Bruce Smith: Q You have spoken to Mr. Atkinson since, as to whether he was there and whether you told him? A Yes.
 27449. Mr. Wade: Q That is when you left the Court last Thursday? A Yes.
 27450. Q Then it is Mr. Atkinson's recollection that has caused you to connect the evidence about his following you up? A It is Mr. Atkinson's saying that he found no record of gas being found that has caused me to go over my notes again to see whether I could find any record of having mentioned it to him, and I could not.
 27451. Q It is then what Mr. Atkinson said that you altered this statement—"Mr. Atkinson followed us up very closely, in gas or light" (paragraph 27322)? A Yes, he has told me that he did not go up that night.
 27452. Q Then you would take his recollection as preference to yours on that point? A I do not.
 27453. Q Did you have any note about that? A No.
 27454. Q Now, with regard to the 19th of August, you say found gas again? A Yes.
 27455. Q Is there any doubt about that? A Well, I am satisfied that it was a 4 per cent. No. Robertson and I sat with that he was there, and he thought there was none, but the difference between none and a 4 per cent. is so slight, when you are making observations in a coal mine, that either might be correct.
 27456. Q But one is gas, and the other is not? A Well, there is a slight ray on the hydrogen flame. The presence of it depends more upon the weight of a person than anything else, I think. At times, one man might say there was a 4 per cent., and another might say there was nothing.
 27457. Q Did you ever discuss that with Mr. Atkinson? A No, I do not think so.
 27458. Q You never mentioned it in any shape or form? A No, I do not think so.
 27459. Q Do you mean to say it never occurred to you, in all those discussions with Mr. Atkinson, when he told you the difficulty of his way was the not finding gas on the 19th night? A Well, that was mentioned by him in a way, but really it did not bring me to my mind with sufficient force to cause me to think that I had found 1 per cent. of gas, and he had none.
 27460. Q Do I understand that he did tell you that the difficulty in the way of his theory was that he had not found any gas on the 19th night? A Yes, I think he did tell me that.
 27461. Q And you never thought of supplying the gap in his chain of evidence? A No, it never occurred to me, as I have already told you.
 27462. Q Were you discussed this question with Mr. Watson, the other inspector? A No, I do not think so. I have talked with Watson, both in the mine and going to the mine, but I have never discussed the location of the explosion.
 27463. Q You have not discussed the cause of the explosion? A We have talked about the cause many times.
 27464. Q If you went so far as that, have not you discussed the location? A No.
 27465. Q Then you were on the mine with him, and you have not discussed the question at all? A We discussed the matter but being gas; but, beyond that, I do not think it was ever talked of.

27005. Q. Did not Mr. Watson advocate the hire of No. 1 Right as the starting point? A. No, I have been informed.

27006. Q. Did he never tell you himself? A. No.

27007. Q. Not lately? A. No. I do not come against Mr. Watson every day in the week.

27008. Q. You were with him day after day in Kaimuki? A. Well, three days.

27009. Q. Have not you seen him since? A. I have seen him twice more.

27010. Q. Now, when you say Mr. Williams found the gas in the 4th Right, did you say anything to him? A. I do not remember. We would talk while the test was going on, and we would probably remark what amount of gas there was.

27011. Q. You say that you did? A. I cannot say, now, that I did.

27012. Q. You say that he made any reference to finding 1 per cent? A. No, I cannot say that.

27013. Q. You were with Mr. Atkinson's party all the time after you first went in on the 4th August, were you not? A. Yes.

27014. Q. Until you came out? A. Yes.

27015. Q. What does this mean—"Copied from Mr. E's notes made on the 4th"? A. I copied his notes after we had dinner that night.

27016. Q. On that day? A. Yes.

27017. Q. What part did you copy—what notes after? A. There is a complete copy in that book of his notes made during that day.

27018. Mr. Haines? Q. There is an arrow there, is there not, to show? A. Yes.

27019. Mr. Haines? Q. Is that what we are reading just now? A. No, there are my notes. The subsequent paragraph is what I copied.

27020. Mr. Haines? Q. What is this that you copied out, and what was your reason for it? A. No reason, perhaps, except to get perhaps better notes than I made myself.

27021. Mr. Haines? Q. The matter, I presume, here and more fully what you yourself had seen? A. Yes.

27022. Mr. Haines? Q. What notes had Mr. Atkinson on the 4th Right? A. He has a note, but it has no mention of any 1 per cent of gas.

27023. Mr. Haines? Q. Was that note taken on the same day that points was taken? A. Yes.

27024. Mr. Haines? Q. Do you mean that all the rest of them which you have here are copied from Mr. Atkinson's notes? A. Three or four pages there.

27025. Q. And do you mean to say that all you took that day was just one page? A. You will find the date, the 4th of August.

27026. Q. Here it is—

Accompanied Messrs. Rogers, Burr, Williams, Lindquist and Atkinson, into right-hand side. Found gas 12,000 feet in that right-hand side, and saw also at the same by Williams and Atkinson on Friday, the 4th instant. Found many gas by the 4th Right on the right-hand side, where they were drilled to check there was a hole from the gas through the coal. Found large in gas side and found some with ordinary flame, but Mr. Williams got up to 1 per cent with hydrogen there.

There are all the notes you made yourself on that day? A. Yes.

27027. Q. And all the rest were made by Mr. Atkinson? A. Yes.

27028. Q. Where is the 4th Right referred to here? A. You will find it towards the end, three or four pages further on.

27029. Q. This is it—

Going out on some more Dr. Robinson's party, and they acted as to examine some gas side on the left side of No. 1 travelling road going out by. Found atmosphere slightly explosive.

A. Yes, that is the note.

27030. Q. When did you copy this out, is Mr. Atkinson's presence? A. Yes, on the night of the 4th.

27031. Q. And you know that referred to the 4th Right? A. Yes.

27032. Q. And that did not trouble you? A. No, it did not.

27033. Q. And where are the other notes then? A. There are none.

27034. Q. Are those all yours? A. Yes.

27035. Q. There are two notes here dated the 4th? A. One might be the 5th, then.

27036. Q. They might be the 4th and 5th, instead of two dated the 4th? A. Yes.

27037. Q. And all the rest are yours? A. Yes.

27038. Q. Now, to come back to the explosion for a moment, this took place at the junction of the 4th Right and the No. 1 roadway? A. Yes.

27039. Q. Do you say you think there was flame? A. Yes, I think so.

27040. Q. Between flame? A. Well, flame as it would be quite the same.

27041. Q. Do you think it would be intense? A. I think it would be.

27042. Q. Do you think the flame travelled along the No. 1 road, going out by? A. Yes, both ways and out by.

27043. Q. Flame all the way? A. Yes, flame all the way, certainly, until it got beyond the 4th Right.

27044. Q. Why not further? A. There is a lack of that for a certain distance beyond the 4th Right, and possibly there might be no flame there, it is just as likely that there was, though. I think there would be flame all the way along.

27045. Q. Now, if there was flame, and, I suppose, a large quantity of dust, between the 4th Right and 5th Right, would not you expect to find signs on the ships between those two points, either naked dust, or clacking? A. Well, I think there was some naked dust, or some dust that was charred somewhat.

27046. Q. On what? A. On the rails and on the sides.

27047. Q. Did you get up of it? A. I took several pieces off, but I did not keep them. I mistook them as some collected afterwards from that road.

27048. Q. From those tests? A. I could not say whether it was from those tests.

27049. Q. Did you see anything on those tests, that you could say definitely was called dust, between the 4th Right and the 5th Right? A. No on the tests, but I think I have seen some on the timbers. When you, there was not very much choking, very little beyond that point.

27050. Q. Would you not expect, if the explosion began at the 4th Right junction, and you had both gas and coal dust at the start, that you would have a lot of coke? A. That is, providing there was sufficient dust to coke, but it may be that there was just sufficient dust to carry on the explosion without having anything to be deposited.

27051. Q. What do you mean by "just sufficient"? A. The coal was not a very dusty coal. 27052.

Flames? W. Reindle, 17 March, 1935.

- 27040 Q. Was it dusty at all? A. Yes.
- 27041 Q. Do you think there was sufficient to create a great quantity of coal-dust? A. Yes; I think there was sufficient to blanket the flame, but whether there was sufficient to leave a large deposit of coal-dust, I think not.
- 27042 Q. Do you think there was sufficient to leave any deposit? A. As I say, I collected off the mine some slight deposit of coal-dust.
- 27043 Q. But you stated very definitely that that was coal-dust? A. Well, it certainly was not very pronounced, but I think there was evidence to the naked eye of its having been raised.
- 27044 Q. Did you see any comparison between the conditions on the No. 1 road there and what you saw in Dudley? A. There was a great deal more coal-dust in Dudley; and yet, in spite of that, there was no more deposit of coal-dust than there has been in Kentucky.
- 27045 Q. In Dudley it was the exception to find an absence of coal-dust? A. No; in Dudley there was a large deposit of coal-dust on only two or three of the roads.
- 27046 Q. Was not there coal-dust deposited on the surface in every one of the main roads in Dudley? A. No, not in the main road itself, because there was not any timber in it except a few timbers, and they were not coated with dust.
- 27047 Q. And were not there ships in the main road in Dudley? A. Yes, some ships.
- 27048 Q. And were there not coal-dust or indications of charring on those ships? A. Yes, on some of them.
- 27049 Mr. Reindle Q. Was Dudley a more dusty mine than Mount Kemble, in your opinion? A. Yes, but it was not dusty throughout, there were places that were decidedly sootier.
- 27050 Mr. Wade Q. Was more sooty? A. All the workings in the left side of the first Right-hand heading were all sootier and damp.
- 27051 Q. What is the extreme side of one part of the pit? A. Yes; and the narrow levels themselves, the continuance of the main road, were very sooty.
- 27052 Q. Did not you get indications of flame up there? A. In the narrow levels?
- 27053 Q. I do not say the narrow levels, but right in the extreme end, where it was wet? A. No; I do not remember seeing any indication of flame.
- 27054 Q. Now, when did the road seem to be dusty (the No. 1 Right in Kentucky), was it at the 10th Right? A. A little beyond the 10th Right, where the road is practically a stone drift, the roof has been taken down, and it has practically stone sides as well as roof.
- 27055 Q. And what height would there be of the stone above and roof?—and stone floor, too, was not there? A. And floor too. I think there would be 12 or 15 inches of it, so far as I remember, I did not measure it.
- 27056 Q. Then, what in your view about Morris, what part did he play in the matter? A. Morris and son, I think, were hurt by some secondary explosion of gas in the first Right-hand back heading (No. 1 Right back heading).
- 27057 Q. How do you get your secondary explosion of gas in the No. 1 Right back heading? A. Either by the flame from the first ignition, or by the force started bringing out gas from the base of that heading on to the Morris' lights.
- 27058 Q. How do you mean "by the force started"? A. Well, a force going up a vein would certainly act as a compressive force on the faces of those two headings, and would displace whatever was in the face.
- 27059 Q. When you say "force," do you mean the actual movement of the coal? A. No; I mean beyond the movement of the coal.
- 27060 Q. Then, you think a force going in might have advanced out some of the gas in the face? A. Some of the gas meeting in the places themselves, between the lowermost cut-through and the face.
- 27061 Q. Do you think Morris was ever farther in than where his body was found? A. I think it is very unlikely.
- 27062 Q. Have you any evidence to show that he actually approached any farther in time than? A. No.
- 27063 Q. Yes, as this force started up towards the face of No. 1, it would go past Morris in the back heading? A. It would go straight up the first heading, or all probably.
- 27064 Q. We do not want a probability; we want what you saw? A. I think it went up the first heading.
- 27065 Q. Did the observations of those show that? A. Yes, I think they did.
- 27066 Q. Did you see any indications that the force had traveled up the back heading? A. No, none at all. I own indications that I think showed that the force had come down the back heading.
- 27067 Q. Do you know where Morris worked? A. Yes.
- 27068 Q. Did you see any indications of where the force had traveled there? A. No.
- 27069 Q. Did you notice the curves in their place and across the heading? A. According to my recollection, the miners was standing.
- 27070 Q. Was it standing upright, or leaning? A. It was not leaning. It was in the working face, and in working order.
- 27071 Q. Then it was not affected at all? A. I do not remember seeing anything to show that it was.
- 27072 Mr. Reindle Q. Do you mean the curves on the face of the back heading? A. There was some of the curves down at the top of the back heading and the front heading, but, as far as I remember, the miners' heading into Morris' place was standing.
- 27073 Mr. Wade Q. It showed no sign, I take it, of being disturbed by a force, either below or outside? A. So far as I remember, the curves was standing in Morris' place.
- 27074 Q. Have you a note of this? A. No. I have a note of the gas found in Morris' place, and of the position where the bodies were found, and then there was a slight deposit of coal-dust on the upper side of the groups, but I have no note about location.
- 27075 Q. Now, you were rather taken with that idea on the Monday, that the originating point was in the faces of the No. 1 Right? A. Yes.
- 27076 Q. And an important thing to find out would be the indications of force, and their direction? A. Yes.
- 27077 Q. Did not you look at Morris' place? A. Yes, I was in there twice.
- 27078 Q. Cannot you say what the condition was? A. I do not remember whether any of the other headings was down, but certainly the inner part of it was standing.

27084. Q. How is it you have no note of it? A. I suppose I did not consider that it called for any special note.

27085. Q. If that highway is standing, from Morris' place across the landing, do not you think that, if any force comes down the landing, it would disappear? A. Yes, I think it would. I am not sure that that place was bordered in any other way than the ordinary run of places, and in that case the highway would not be right across the landing.

27086. Q. How would the car be taken into Morris' place? A. It would be turned in, as it is turned into a house of other places, not by a closed door, but by a highway that would only reach partly into the landing.

27087. Q. Then you cannot tell us what the conditions were? A. I know that above that, there were signs of an outlay fence, and below that there were signs of an outlay fence, but I do not remember the names in Morris' place being blown down.

27088. Q. You say it was standing upright? A. Yes.

27089. Q. And undisturbed? A. Yes in the place itself.

27090. Q. Now, let us take the conditions of the names across the landing? A. Yes.

27091. Q. Was that standing, or blown away, or outlay? A. Whatever had been placed there was standing, but I do not think it was stretched right across the landing.

27092. Q. Was some of it down? A. No, all that I saw was standing up.

27093. Q. Did you see some of that names that was in the landing blown partly outlay? A. No. I saw pieces of names in the landing, but I could not say from where they had been blown.

27094. Q. Which groups were they moved, where they moved, any group at all? A. In some cases they were moved the highway, and in other cases they were up toward the other way.

27095. Q. In Morris' place? A. Well, there was one name a little above Morris' place.

27096. Q. Within a yard or two of Morris' place, did you see any names wrapped round a prop? A. Yes, I did.

27097. Q. What direction had that apparently come from? A. From the face of the No. 1 landing.

27098. Q. Did you see any signs of names having been driven outlay near Morris' place? A. Not there.

27099. Q. Did you see any signs of names having been driven outlay between Morris' place and the face? A. Yes.

27100. Q. Outlay? A. No, no, between Morris' place and the face I said the faces were outlay.

27101. Q. You saw no names anywhere between Morris' place and the face which appeared to have been driven outlay? A. No.

27102. Q. Did you see a water-bottle with a strap on it? A. Yes, I did.

27103. Q. What that drove outlay, or outlay, do you think? A. I could not say. I could not say where it was at the face of the explosion.

27104. Q. What did you think? A. I thought they had had their head up there, or had gone up there the same person.

27105. Q. What was the condition of the strap and the bottle? A. I do not know. I saw it.

27106. Q. Where was the strap, was it loose? A. It was attached to the bottle, I did not touch it.

27107. Q. You cannot tell us the way they were lying? A. I know they were lying on the left-hand side going up.

27108. Q. You cannot say whether they showed a face going outlay, or how they were lying? A. No.

27109. Q. Now, you say the first two stoppages on the outlay side of the 5th Right were blown towards the rope road? A. No, they were blown towards the back landing, but the stoppages higher up were blown towards the rope road.

27110. Q. They well? Then two were blown towards the rope road? A. Yes.

27111. Q. Which did you say were blown in the opposite direction? A. Those higher up.

27112. Q. How many? A. I think there were the top two.

27113. Q. It cannot be that one (pointing to the plan)—that is the survey? A. Yes, that is within—the second and third outlay side of the 5th Right.

27114. Q. Then, there were two with those stoppages blown from the travelling road to the rope road, but really only one? A. Two, with that door blown in.

27115. Q. The first outlay of the 5th Right was blown from the rope road to the travelling road? A. Yes.

27116. Q. And the second and third outlay of the 5th Right were blown from the travelling road to the rope road? A. Yes.

27117. Mr. Rusk: Q. Are you speaking from memory entirely with regard to this place, or have you made notes of it? A. I have no notes, but I have seen the place that has been down.

27118. Q. Have you a clear recollection of that, does what you saw on the plan compare correctly with what you saw on the scene? A. Yes, and having seen the plans they confirmed my view.

27119. Mr. Wade: Q. You are clear now, from what you saw, that the first stopping outlay of the 5th Right was blown to the travelling road? A. Yes, I think so.

27120. Q. Now you say "back", are you sure? A. I have not any note of it in here, and therefore I would not pledge myself as to whether it was blown towards the travelling road, but I think it was.

27121. Q. And what you saw on the plans correspond with your recollection with regard to these stoppages? A. Yes.

27122. Q. It corresponds with your recollection as to those three stoppages outlay of the 5th Right? A. Yes.

27123. Q. Now, here is the first stopping outlay of the 5th Right blown the opposite way to what you say, according to the plan (indicate it on screen)? A. According to the plan, there are only two stoppages shown.

27124. Q. Do you say the plan ought to show three? A. I suppose it has not been extended far enough.

27125. Q. Then, you will admit this, that the plan does not correspond with your view of the first stopping outlay? A. Yes, I must admit that. The plan shows the first stopping as having been thrown over towards the rope road.

27126. Q. And your view is that the first stopping was blown in the travelling road, and the next two to the rope road? A. Yes, but I cannot dispute this.

Witness—W. Buxton, 17 March, 1903.

- 230217 Q And you have no note at all? A No, I have no note about that.
- 230218 A. Buxton. Q You and you had seen the glass indicating the way that those stoppings had been blown, what place was it you had seen? A That place [Sketches 28].
- 230219 W. Buxton. Q How was it you took no note at all at that stage? A I did not take any note of the two stoppings being blown out, because I thought that they were quite sufficiently dead on my mind without recording them in my book.
- 230220 Q And you took no note of the condition of the lantern in Morris' place? A No.
- 230221 Q Was that sufficiently hard in your mind? A I think so. There was nothing there broken, and therefore, I took no note of it.
- 230222 Q And you did not take a note of the bottle and the stop? A No, I did not attach much importance to them.
- 230223 Q Did you take any note of the condition of the mirror at the face? A Yes.
- 230224 Q What does your note say? A, I do not think I have it in my notes; but I have a distinct recollection of that.
- 230225 Q Then, it was in your notes? A Yes, it is. [The witness' note book was handed to him, and he looked through it.] I have not any note there, but I was in that place afterwards. I cannot find any note, but I can speak very distinctly on the state of the mirror in those two places. The mirror at the front landing was blown against the right hand corner of the cut-through.
- 230226 Q Showing what? A Showing a blow having gone inward. There was part of the back plate where the mirror was blown over towards the right side, and part of it was loose.
- 230227 Q When you say "part blown to the right side" what do you mean by that? A A portion of it.
- 230228 Q Was it blown over? A Yes, the mirror was down, and had been here from its prop.
- 230229 Q What length? A I cannot tell—several feet.
- 230230 Q Do you mean blown to the wall? A Yes, to the wall.
- 230231 Q Where was that,—was it near the part that was blown? A The part that was blown was on the low side of the cut-through.
- 230232 Q On the northern side? A Yes.
- 230233 Q And the part that was blown was where? A Was on the high side of the cut-through.
- 230234 Q You say there was no question of gas on the face of No. 1 landing. I want you to tell me definitely, if you can, about which of those theories is proper to,—do you think there was flame going at at the time the air passed Morris' working place? A No, I think it is not so likely as that there was a compressive force which brought out the gas from the floor, and that it ignited at Morris' light.
- 230235 Q Now, you have said that there was a prop with which dead on it before of where the lantern was found? A Yes.
- 230236 Q When would that wheel dead be depressed, do you think, before of where Morris was found? A Somewhere during the explosion.
- 230237 Q When—in what stage? A Well, during the blast caused by the ignition of gas there would be a flame coming down the landing, and that wheel dead would be put on that prop at that time.
- 230238 Q Would that take place when the force of the explosion first went into the floor, or when it went back? A No, that would take place when the gas that had been ignited was passing that prop. The main force that brought out the gas would certainly raise the dust, and the dust would be in the air.
- 230239 Q No, according to your theory, at that time the gas had not been ignited, it had not got back to Morris at that stage, and this incident was on the slope side of Morris' place? A Yes.
- 230240 Q And you say that at that time there was no flame? A I think it was likely there was no flame, but, assuming there was one, then Morris' light ignited the gas, it is a common thing for the dust to be in the low side of props, or here, it has been observed many times.
- 230241 Q How do you account for that theory? A I account in that way, that it has been observed in many cases that the dust has been on the back side of the prop.
- 230242 Q When do you say it occurred? A Immediately after the ignition of the gas.
- 230243 Q Immediately after it came back to Morris' light? A Yes.
- 230244 Q Then, at Morris' place, it must have split, and some must have gone back to the face and some have gone outward? A Well, there is no doubt that there would be a force backward.
- 230245 Q If that is so, that must be the case? A There is no doubt there could be a backward force as well as a forward one.
- 230246 Q Can you tell me what the indications of force were between the 1st Right landings and those cut-throughs towards Arthur's place? A Yes, there were two holes partly filled which had been blown to the wall.—[Interposed.]
- 230247 Q Were the forces all going to the west, with the exception of that one place of mirror you spoke of? A Yes.
- 230248 Q Now, did not you see another mirror dead on the eastern side of that place of mirror which you spoke of, which door had also been dropped and here? A Well, yes, I think I did, I think I saw more than one door along there; but I did not take particular notice of them, except the one, where the mirror had been blown fairly on an opposite direction along the prop.
- 230249 Q Did you take that up and measure it, and compare it with another piece that was left on the western side? A No.
- 230250 Q How can you say that it did not come off that door that had been on mirror on the eastern side, rather than the west? You told me you found on the western side of Arthur's place a piece of mirror which you thought had come off the door and been blown from the west to the east? A Yes, I think so.
- 230251 Q Now you say there is a door also in the line of cut-throughs on the eastern side of where you found the mirror? A Yes, there have been several of them.
- 230252 Q Take the nearest, had not the mirror been displaced off that door on the eastern side of where you found the mirror? A Yes.
- 230253 Q Did you ever trace that mirror? A No; I was quite satisfied with looking at the main forces along there, and I did not pay much attention, or I did not regard with much attention, the mirror being blown; the job was quite sufficient.
- 230254 Q You did not give much attention to the mirror? A No, the jobs were of much more importance, and received more of my attention.

- 28055 Q Then you did not pay attention to the marks? A I did not, any more than I have told you
- 28056 Q Did you notice a man's coat near there? A No, I did not.
- 28057 Q On the direction in which it had been blown? A No.
- 28058 Q Now, you said the other day that your theory of a coal-dust explosion would reconcile all the contradictory evidence you saw, what were you referring to when you said that—that contradictory evidence? A Well, there were two or three fires on each road, I suppose, that were in contradiction to the other fires.
- 28059 Q Does one ever, take the No. 1 Right road first of all, tell us the contradictory fires you saw on that road? A Two of them take about the 14th Right, or the 14th Left, I thought there might be some similarity about them.
- 28060 Q Do you think so now? A No, I do not think so now. I think that they were all traveling in an easterly direction.
- 28061 Q Well, tell us the signs of contradictory fires you got on the No. 1 Right? A You say this theory of yours reconciles them all, then what are they? A I said that my theory of the question of coal dust was quite reconcilable with the contradictory fires.
- 28062 Q No, you said that it reconciles them, if I am not mistaken, well, tell us the other contradictory fires, while you are about it? A I do not remember very many, there were very few.
- 28063 Q Well, give us any? A I thought that one of them fell into just beyond the dead horse on the easterly side of the 14th Right showed an easterly fire.
- 28064 Q Do you think so now? A Yes.
- 28065 Q Where was it? A Out of them five full take beyond the dead horse.
- 28066 Q That would be at the 14th Right, or was it possible? A Yes, on the easterly side of the 14th Right.
- 28067 Q And what did the others show? A I think they showed flames inward, I think the first one showed an inward fire.
- 28068 Q Taking them as a whole, do you think they are consistent with an easterly fire? A Taking them as a whole, I think the easterly fire is the more probable.
- 28069 Q Where is it then, is there anything else you can give us showing contradictory fires? A No, I do not remember any, except two pairs of marks that we have already spoken of in Akeley's heading.
- 28070 Q Now, you told us the other day about some drifts of dust from the 14th Right, now road towards the goal? A Yes.
- 28071 Q Would not that be consistent with a force going up the No. 1 road? A Yes, I think so.
- 28072 Q Turning us to the 14th Right and entering round the corner, and making that dust deposit at the goal edge? A I think so.
- 28073 Q It has nothing to do with the second question which you spoke of as the base of No. 1? A No, although the force of the second question would probably be carried on the easterly direction.
- 28074 Q Now, did you see the travelling road just edge of the 14th Right, the headings of an old door? A No. A wooden door.
- 28075 Q I do not know what the door was, I am speaking of the stone buildings? A I saw the stone buildings of two doors on that travelling road, but I think they were both on the easterly side of the corner.
- 28076 Q I do not mean them, a few yards only, going up the travelling road, from the 14th Right, did you see the buildings of the doors there? I suppose you were going from the goal, and you struck the travelling road, and then turned easterly, now, a few yards only, did you see the buildings of a door there? A No, I did not, I did not see a door there.
- 28077 Q Would you expect to find any indications of force going easterly there, on your theory? A Well, right, I think there were slight indications of dust drifting.
- 28078 Q Only of dust drifting? A I did not see any other force.
- 28079 Q Would you expect to find the building corner displaced, on your theory? A Yes, if there were any building doors on the side.
- 28080 Q What would displace them? A Well, the expansion of the gas which first lighted. There would certainly be an expansion both inward and outward along the travelling road.
- 28081 Q If there is no explosion, but simply an ignition, would you expect the gas to go in all directions? A If there was no ignition, there would be no expansion.
- 28082 Q That would be an explosion—would there be an explosion, or not? A Yes, it would be an explosion, the force would be easterly and westerly, probably, for a short distance.
- 28083 Q Well, if there was an explosion at the very first start, in just any place, on the travelling road, which might displace these building stones of this door edge, would not you expect it, to have some great effect on Parrott too? A No, it does not take very much force to displace a few rubble building stones.
- 28084 Q It takes very much force to displace a man body, does it not? A It might knock a man down, but it does not follow that it would kill him.
- 28085 Q If there was an explosion, there was force in the travelling road? A Yes, I suppose there would be.
- 28086 Q If there was a flame, it would be intense? A Yes.
- 28087 Q If it was sufficient to burn his hair would it not be sufficient to burn his clothes too? A I do not know, sometimes men's hair and skin are burnt, and their clothes show no signs of burning. There are plenty of instances of that, where men are burnt by small quantities of gas, and burnt very severely, but there is no sign of burning on their clothes.
- 28088 Q I am not talking of small quantities, I am talking of the men here? A Well, it is possible that a man might be burnt, and that his clothes might not be burnt.
- 28089 Q Well, I take it that your theory is that there was no rush of air out of the 14th Right at all? A No great rush of air.
- 28090 Q You say "no great rush," now, was there any rush at all? A No rush at all, I think it would be expanded out gently.
- 28091 Q What we call easterly? A No, but it would be forced out, but there would be no great velocity, it would simply be forced out as gently as the force put out.
- 28092 Q Do you think that the way, if there was any forced out at all, would drive a column of air in front of it? A Yes, certainly the air would be driven in front of the gas; any air that existed in that road between the goal and the travelling road would be driven outward; but it need not travel at any great velocity.

Prison—W. Winkler, 11 March, 1905.

20103. Q Supposing the car travelled at 50 miles an hour, and went inlets and outlets from the 4th Right, do you think that the car displaced in front of it would have a light cut? A If it were at that rate, I think it would, but I do not think it was travelling at that rate.

20104. Q Did you, when you were making your inspection in 1909, look for gas on that occasion? A Yes.

20105. Q Did you look in all the likely places? A I did. Those likely places were the gas pipes for each district, and the running pipes.

20106. Q Did you see a smell of dust on the north-eastern angle of the junction of the 4th Right with the No. 1 rope road [passing it out on the place, Exhibit 25]? A Yes, that is, the cut-through between the two buildings.

20107. Q How do you think that got there, did it seem to have been blown? A Yes, I think it had. I think that that was the back-lash from the explosion, it had occurred to that point, and so dust swept that dust in there with it.

20108. Q You think that after the explosion had travelled up to the face of the No. 1 back-lash came along between them, which it deposited just at the junction of the 4th Right with the No. 1 road? A Yes; I think that the back-lash which follows all explosions would carry that dust in there.

20109. Q Do not you think that, if there was sufficient back-lash to deposit that dust, you would have found sufficient indications of its going outwards? A Yes.

20110. Q Did you see any indications of it? A No, I did not see any indications on the main road, but I saw this.

20111. Q But, I say, if that was caused by the back-lash going outwards — [Interrupted] — A Not necessarily going outwards, it might have been coming inlets from the tunnel mouth.

20112. Q Take it as going outwards first, would not you also expect to find indications of dust up against the timber, and so on, going outwards? A There was very little timber on that road.

20113. Q Were not there timber workings? A Yes.

20114. Q Were not there indications there? A No, they were jammed with dust on the outwards side.

20115. Q Apparently caused by an outwards blast? A Yes, but I did not see any dust on the rope road.

20116. Q If this dust on the 4th Right corner was caused by the back-lash going outwards, would not you expect to find dust lumped up against the inlets side of the timber workings? A But there was no dust there so you cannot tell, but there was plenty of dust in the travelling road to account for that.

20117. Q Supposing the dust came from the tunnel mouth, and deposited this dust of dust against that corner, would not you expect to find drifts of dust on the outwards side of objects? A It would not necessarily have come from the rope road, it may have come from the travelling road.

20118. Q You told us it came from somewhere on the rope road? A No, I do not think I did.

20119. Q On the way it came by a back-lash? A Yes.

20120. Q Where did the back-lash come from? A From both parts.

20121. Q What road? A Both travelling road and rope road.

20122. Q Take the rope road, if it came from the rope road, would not you expect to find indications of drifts of dust on the side the dust came from? A I did not want to say that the dust you find there came from the rope road. I want to say that that dust was taken up in the travelling road by the back-lash, and deposited there.

20123. Q Then you think this dust came from the travelling road? A, I think that dust was picked up in the travelling road.

20124. Q How did it come? A It had been carried by the road of air that I call the back-lash, so it entered that place, as it would do, it had the dust and deposited it on the corner.

20125. Q What does back-lash mean, does not it mean filling the vacuum caused by the pressure of the explosion? A Yes.

20126. Q And you see no indication at all of the explosion having travelled the travelling road? A No.

20127. Q How do you expect a back-lash there then? A However, when these forces come right past, or get to be so large that on the rope road, it would certainly, as coming back, pass along the travelling road, as well as the rope road, all parts of the mass that the blast had past along would have a partial vacuum, and there would be afterwards filled by the return force.

20128. Q Then, if there is sufficient dust to deposit here at the corner of the 4th Right and the No. 1 rope road, which had come along the travelling road, would not you expect some drifts of dust in the travelling road? A Well, the travelling road was not dusty in all parts, it was only dusty in some parts.

20129. Q You said there was a big stone on the 4th Right? A Yes.

20130. Q Did you mean that stone came to where it came from? A I think so. I think it came from that fall on the travelling road. It had every appearance of having been taken up there from that fall on the travelling road.

20131. Q What do you mean by "taken up there"? A Some time had carried it there or driven it.

20132. Q Did it seem to have come from the same place as the mass body of the fall on the travelling road? A Yes, I think it was part of the fall.

20133. Q Do you think it rolled there? A No, I think it was taken there. The fall occurred probably during the time of the explosion, one of these stones, I think, was taken by the velocity of the air and carried so.

20134. Q Do any of the witnesses where? A From all parts of the mine into the 4th Right hand.

20135. Q Were there smaller stones in that fall than the one you saw? A Yes, I think there would be, but I did not particularly notice the size. I was satisfied when I saw that that it was one of the stones from that fall.

20136. Q Now, you said the other day that the wind blast theory would not reconcile the different forces that you saw, do you remember saying that? A I remember saying something to that effect, perhaps it was unfortunate to use the word "force."

20137. Q Is that correct, or do you want to alter it? A The wind blast theory does not reconcile itself to all I saw.

20138. Q [Reading from paragraph, 27112] "Q. Can you reconcile the contradictory directions of force which you saw with a single blast, as Dr. Balchman has suggested? A. No, I cannot reconcile them." What cannot you reconcile with the wind blast? A I do not know about the direction of force, but I cannot reconcile the blowing of men.

26139. Q. You say there that you cannot reconcile the contradictory directions of force with a single blast, now, when you are speaking about that you could not reconcile? A. I have already said that I did not see many contradictory forces.

26140. Q. Whether you saw a few, or a lot, I want you to explain that answer, that you could not reconcile the contradictory directions of force with a single windblast? A. Well, a blast of air would not displace the stoppage from the rearward to the travelling end in one part, and from the travelling end to the rearward in another part, I think a single blast of air would not do that.

26141. Q. Do you see anything impossible in this: If a force of air went up the main rope road, passed the 5th flag, and displaced the first two stoppages, and supposing it got through over the back heading, would not the three be likely to split this, edge and ridge? A. Yes, but it would have an equal opportunity of going straight up the face heading, you know.

26142. Q. Could not it go both ways? A. Yes. I think, if it had been a single blast, the forces would have been all in the one direction.

26143. Q. Could not it have been caused by the blast going up the main heading, and these stones toppling down afterwards into the main heading? A. It may have been caused that way, but I do not think it is likely. I think these stones showed a certain amount of force outward.

Cross-examination by Mr. Lyngby:—

26144. Q. You said that the fall of roof occurred in the lower part of this 55-acre gash? A. Yes.

26145. Q. What do you mean by the "lower part"? A. I mean about thirteen feet from the edge, a distance to which no one could travel.

26146. Q. Can you express that in yards? A. No, I cannot. I could not say how many yards. It was certainly at a point to which no one could travel.

26147. Q. About how far? A. Oh, it is impossible to say how far, there is a gap 32 acres in extent; the gas was forced out from some part of it, certainly not from the edge.

26148. Q. I am not speaking of that, but of the fall that occurred in the lower part, where was this fall? A. It was somewhere in the same part.

26149. Q. But how far from the edge? A. I could not tell you that. It is impossible for any one to tell you how far from the edge.

26150. Q. Had you any information as to what area of roof remained to fall in the 4th Right? A. No, I have heard it said that there was about 42 yards square in fall over the edge.

26151. Q. Then you do not assume a fall any further in than 42 yards from the edge? A. I do.

26152. Q. Do you not know that the whole of the gash, with the exception of that area of 42 yards, had fallen heavily and weightily some time before that? A. No, I do not know that, and, if I had been told it, I would say it was very improbable.

26153. Q. Well, if it has been shown here by Mr. Leitch, the under-manager, that, up to the area of pillars that had not been extracted, the gas had fallen, heavily and weightily, over you prepared by my facts to dispute it? A. No, not by my facts, but I say it is very improbable.

26154. Q. Then, have you not supposed a fall further than 42 yards from the outlet? A. Yes.

26155. Q. Without any data? A. Yes, there is very little difference between supposing and making an assumption.

26156. Q. You have suggested it without any data? A. I say that a fall occurred in the gash, I have no data to say how far in.

26157. Q. Will you tell me what data you have to say that any fall occurred in that gash? A. Only that it follows as a matter of course that falls did occur after the extraction of the coal, and that they continued to come.

26158. Q. That is not data, that is a conclusion? A. Well.

26159. Q. I'd want to know what data have you on which to say that any fall occurred in the 55-acre gash? A. There is certainly the fact that the stones were quite clean, and not covered with dust, at the entrance to that gash; that is sufficient proof in my mind, either that the fall occurred at the base of the explosion; or, perhaps, it had not finished, and finished some time afterwards.

26160. Q. Is that the only data you have? A. Yes.

26161. Q. That being so, do not you see that the close aspect of the stones would be quite consistent with a fall of only a few yards back? A. Quite so.

26162. Q. That being so, what right or what justification have you for assuming that there was a fall any further in than a few yards?

26163. Mr. Froen (aside): He does not say there was.

26164. Mr. Lyngby: I understood you to say that you did not say there was a fall further in than the 44 yards? A. I say it is very probable that there had been a fall.

26165. Q. Your theory is partly based on that? A. Yes.

26166. Q. Do you only delay for saying there was any fall in the fact that there were clean stones at the edge of the gash, is not that quite consistent with a fall only a few yards in? A. Yes.

26167. Q. And therefore you have nothing to warrant the assumption that there was a fall any further in than about, say, 20 or 30 yards? A. Nothing, except that the gas would be likely to be lodged in a higher part of the gash than the 44 yards would be.

26168. Q. Then you are basing the assumption that the fall took place some distance in the gash upon the fact that a considerable quantity of gas came from the gash, in your opinion? A. Yes.

26169. Q. That assumes, then, a fairly large accumulation of fire-damp in the gash? A. I think so.

26170. Q. Would the failure to inspect that gash weekly, as required by special rules, in your opinion, be negligence in the management?

26171. Mr. Froen: I object to that.

26172. Mr. Koser: That is really a question that the witness is asked to draw, which the Commission can draw just as well as he can; but, without going any further than that, you might ask the question there, and still arrive at the same conclusion as you wish to arrive at, Mr. Lyngby.

26173. Mr. Lyngby: Very well, Your Honor. It was on his personal knowledge of the working of a mine that I based the question.

Exams—W. Smith, 12 March, 1935.

28174. Q. Your theory assuming a fairly large accumulation of free gas in the pool, what would you have done if you had been Manager, to deal with that danger? A. I think I should have observed my special rule, if there was a special rule saying that the gas had to be removed, I should have done it.

28175. Mr. Johnson. Q. While you are on that point, do you draw a distinction between waste workings and gas? A. Probably they are the same.

28176. Q. Do you understand, and do you interpret a special rule which provides for a weekly examination of waste workings to mean the weekly examination of the gas? A. As well as the other old workings.

28177. Mr. Johnson. Q. You mean that "waste workings" is a comprehensive term? A. Yes, I do; I think it includes gas.

28178. Q. In waste gas, waste, and old workings? A. Yes.

28179. Mr. Johnson. Q. This special rule would be taken by you to comprehend any gas (including Special Rule No. 10, p. 45, note of inquiry), "It shall at least once in every week examine, as far as is practicable, the state of the waste workings, etc., etc." A. Yes, by example as far as practicable those gas.

28180. Q. Inasmuch as the pillars were being worked at the edge of the gas before the disaster, in your opinion was it probable to gas that gas such an examination as would have detected that free gas? A. No, it was not; you could not have got far enough in to have detected that free gas.

28181. Q. How do you know? A. Because I am assuming that the gas came from the highest part of the pool. I have already said that you could not get to that point to make an examination.

28182. Q. But you are assuming that it had come from a place that had settled solidly? A. No, I have not. You have told me that it had been asserted that it had settled solidly; but I say it is very improbable.

28183. Mr. Johnson. Q. Why? A. Because, as the pillar extraction goes on, even if you had had a large fall which went to the surface, after the pillar extraction was carried along there would be large holes made by the fall which would not be filled in by the pillars.

28184. Q. Do you mean to say that, after the pillars from 25 acres had been extracted, the gas would not have consolidated absolutely tight? A. Not all round the edges; it may be so in the middle, but it would not be so all round the edges.

28185. Q. When do you mean by round the "edges"? A. I mean round the edges of that part that has fallen right up to the surface, so that has settled tight. I mean to say that in a gas it is impossible to get the place absolutely filled up.

28186. Q. Have you ever had any experience of driving through a gas? A. I have, and I have come across open places, as well as places that were solid.

28187. Q. Was it a large gas? Well, I suppose it would be 500 yards across it. I do not know the extent in the other direction; but there would certainly be 500 yards across it.

28188. Q. It is a very extraordinary thing, because I have a place in my mind where a drift was made 500 yards through a gas, and it was water tight? A. There was not so. There were certain places that were very permeable to falling.

28189. Q. Was there any considerable quality in this gas? A. We could not say so, but I am assuming as what I have of other gas. I have been able to see other gas, and I know that there is considerable open right under the edges that is never filled up, even though they seem to be better very close.

28190. Mr. Johnson. Q. What thickness of fall have you got in your mind as having taken place beyond the area 14 yards square that is spoken of as having fallen? A. Probably 50 feet high from that.

28191. Q. And you assume that the gas was on the top of this fall, that you speak of, beyond the 14-yard area, or on the 14-yard area? A. No, beyond that, and higher than that.

28192. Q. And you also assuming that the fall beyond the 14-yard area although you state it was open, was sufficiently closed to prevent people from making any examination? A. Oh, yes, there can be no doubt of that. It would not be safe for any one to go in to that part to make an examination.

28193. Q. If it was 10 or 20 feet thick, if it was loose, as you say it was, what space would there be on top for a fall to take place, in a mass originally 5 feet thick? A. You must bear in mind that this stone, being hard, would certainly not be tight, and there would be space sufficient upon the gas to be so.

28194. Q. Do you assume that there was sufficient space on the top of that fall, after allowing for the expansion of the stone, to enable another fall to come which would drive the gas down to that locality? A. Yes, I think so. Even if there were only a foot, there would still be more than large amount of gas, and a subsequent falling of the roof would simply drive out that gas.

28195. Q. That would the subsequent settling of the roof be likely to fall suddenly, or to divide down so as to allow that gas to go higher up? A. No, I think the gas would be driven out, it has been so in dozens and dozens of cases.

28196. Q. That you would want a tremendous fall to drive it out? A. Not necessarily, but a large fall. I have seen a fall not larger than the 14-yard square drive gas out.

28197. Q. Do you assume that the fall beyond the 14-yard square took place before the fall on the area 14 yards square, so bring out the gas before the 14-yard square area fell? A. Yes, oh yes, I think that the fall, as it were, had its commencement in this higher part, it drove out the gas, and this 14-yard square area must have fallen after that.

28198. Q. Do you assume that the fall in the 14-yard square area fell subsequently to the ignition of the gas, as given to it? A. It was probably falling at the time, and continued falling, even after the ignition.

28199. Q. Would it not be more likely that the 14-yard square area would, in all probability, it being the last part of the roof, fall first, and that any fall that affected the area beyond the 14 yards would be a subsequent fall? A. Well, you might be so.

28200. Q. In that case would it not be probable that the gas was under the area caused by the 14 yards roof? A. Well, it is possible, I will not say it is probable.

28201. Q. From your experience, would not that be the most likely to fall first, the 14-yard square area? A. Yes, I think so.

28202. Q. A fall taking place in this 14-yard square area would, in a very large extent, relieve the higher stone, which would subsequently fall? A. Yes.

28203. Q. Now, do you assume, in view of these facts, that the first fall was in the 14-yard square area? A. Yes, I say I think it is likely.

28204. Q. That the first fall would be in the 14-yard square area? A. Yes, and that would be followed by the higher parts falling.

28205.

25105. Q. What distance do you assume that the first fall in the 44-particle square area would be? A. I could not say that. I really could not say that.

25106. Q. You have no idea? A. No. I do not know how it fell, but I certainly think it would be several feet in thickness.

25107. Q. Do you think it would be sufficiently thick to fill up the roadway leading into the 4th Right? A. No, I do not think so.

25108. Q. Do you know that a fall had taken place in that area? A. Not thick before the disaster took place. A. Yes.

25109. Q. What would have happened probably? A. Just as I had on from the 4th Right? A. Yes.

25110. Q. Now, do you consider, as do you not, that the second fall, the fall of the 44-particle square area, would be sufficiently thick to completely fill up that? A. Just as I had. A. It would block it, as that nobody could travel in it, but it would not block it as so to prevent gas coming out, because these stones do not fill in. You cannot get that road to fall anything like air tight.

25111. Q. Do you think this gas was in the 44-particle square area before the first fall took place? A. I think it is possible, but not probable.

25112. Q. What reason have you got for sending it to that condition? A. I think this 44-particle square would be more or less under the influence of the air current, which would tend to keep it clean.

25113. Q. What evidence have you got that there was an air current at all? A. I know from the plan that the air current really passed through or round the edges of that gas.

25114. Q. What shape? A. The same shape of the gas. I understand that the air current came from the high side.

25115. Q. Show me on the plan where the air would be likely to get in? A. I understand that the air or wind passed through most of these openings on the outside and at the north end corner of the gas.

25116. Q. Would the opening which was travelling through from the pillars which you have fixed on the plan not have been just as likely to affect the higher area in the lower area? A. No, I think not.

25117. Q. What? A. Because it would be prevented by the stone that was fallen from getting any into those places. It would certainly take the edges, where there was the least amount of stone fallen. That is where the air would flow around.

25118. Q. Round the edges? A. Yes.

25119. Q. And it would not penetrate through, and go to the top? A. No, I think not. I think that the higher parts would be always more or less away from the air current.

25120. Q. Would we then condition apply with equal force in the 44-particle square area? A. It would apply to some extent, but not with equal force. I say that the 44-particle area would be more subject to the influence of the air current than the higher parts beyond it.

25121. Q. You think that the probability would be that it would take the shortest way of getting round? A. It would take the shortest way; and that would be the most open way, and that would be round the edges, and, in going round to those men, it would sweep through the 44-particle square area better and easier than it would go to the other parts which were filled.

25122. Q. If it was round, the fall was sufficiently close to prevent the air travelling round that way, would that other part remain? A. Yes. I do not mean to say that the air did pass right through the middle of the gas. I mean to say that the air getting in from the east and north points would sweep the way through the center, the more open parts.

25123. Q. Do you think it is easier for the air to pass out from the fallen area, where it was fallen across, than to go round the roadway? A. No, I think it would be easier to go round the roadway than to get through a place which was filled closely.

25124. Q. Then, is it likely, if the fall was very close, as we have it here in evidence, that any air at all would travel over there? A. Not pass over at all, it could not.

25125. Q. Would it go round it, in view of the fact that it would be more likely to encounter more friction in going round than in going through the openings? A. Yes, but even that does not show that air would go. We know that, if left to itself, the air goes even to places where it encounters more friction. There would certainly be more air going through that gas, but it would not go through the center. It would pass through the edges. You see it would have to pass round and come out of the 4th Right-hand. I understand that is the only outlet, there may be others further on, but that is the principal outlet.

25126. Q. Which do you think would be the most likely way for the ventilation to travel through that gas, would the inside air have a stronger force to the east, or would the return air be the stronger, and draw it to the west? I think the return air would be the stronger, and the current would be in that direction.

25127. Q. Both require to be open to get a current at all? A. Considering there was a current of air coming in from the daylight toward close by, part of that air would pass the gas and pass through it, and come down to the lower part of the ascending road, which was the return.

25128. Q. Did you make any minute examination of those openings which you have pointed out on the plan? A. Yes, I examined all these openings on the east and the north side myself.

25129. Q. And what, in your opinion, was the state of the fall, was it close or open? A. They were certainly not close. They were not safe to travel very far over, but they were not close. I was down several of them for 10 or 15 parts.

25130. Q. Did the fall appear to be a thick and heavy fall? A. No, as far as I could see about it, in almost every case, would permit you to crawl along.

25131. Q. What was the apparent size of the stones which had fallen there, were they very large blocks? A. Large blocks. I suppose most of them measured 10 or 12 feet on the side, and some less.

25132. Q. And about what thickness did you observe? A. Some 1 foot. I do not think I recalled over some that was thicker than that.

25133. Mr. Lyngby. Q. You say now that, in your opinion, the air did not make through that gas on to the travelling road? A. I say it did not.

25134. Q. From the air that was coming up from the daylight toward? A. From the air coming by the daylight toward.

25135. Q. In your opinion, is that good management? A. Well, in my opinion, I think I would not do it myself.

Wheaton-W. Beville, 17 March, 1935.

28126. Q. Is not it bad management to have an intake air coming through a goof and going on to the travelling road? A. No; I will not say it was bad management, but it is certainly not an exact compliance with General Rule 1.

28127. Q. Is it a questionable practice? A. Yes.

28128. Mr. Robertson. Q. I do not quite understand that? A. It is not a compliance with General Rule 1.

28129. Q. Why not? A. That intake air must not travel over old workings.

28130. Q. But it is not intake air if it travels through that goof to the return? A. Yes, if it goes to those men at work.

28131. Q. You do not mean to say that intake air cannot be taken for the purpose of ventilating a goof? A. No.

28132. Q. Then what do you mean? A. But Mr. Lyngstøl is asking me about when the men were working?

28133. Mr. Robertson. Q. Does your question assume that that was the system of ventilating those workings when the men were working?

28134. Mr. Lyngstøl. Q. My question is—would not the air go up to those men, working at the 4th Right, north of the 4th Right? A. I thought you meant the four men that were working taking the pillars out (from the 4th Right).

28135. Q. Do you think, then, that it is right to have the ventilation for those men coming through that goof?

28136. Mr. Wade. Q. The suggestion now is that the whole ventilation to keep those men going, drawing those four pillars at the 4th Right, was got by a mine shaft through the 35 man goof from here to there (from the cross cut leading to the 4th Right). I object to that.

28137. Mr. Beville. Q. I do not think your question implies that that was the sole system of ventilation, Mr. Lyngstøl.

28138. Mr. Lyngstøl. No; but that the men would be getting tainted air, inasmuch as it came through the goof.

28139. Mr. Beville. Q. Mr. Beville has just said that it was designedly taken through there for those men.

28140. Mr. Beville. Q. That would be entirely disconnected from the theory of the mine of this explosion.

28141. Mr. Lyngstøl. As a matter of fact one of the notes you made in your notebook in that mining that ventilation in that way is a questionable practice? A. That is not a note; it was struck out immediately after it was made.

28142. Q. Why was it struck out? A. Because it was made under a misapprehension. I thought when I made this note that this travelling road was an intake.

28143. Q. Just read out the note? A. But I say it is no longer a note now, you see.

28144. Mr. Lyngstøl. But after you struck it it is not.

28145. Mr. Beville. Q. Now when it is made under a misapprehension.

28146. A. (To Mr. Lyngstøl.) It is here (reading from his notebook) — (Understand air current from daylight tunnel passed through this goof and then on to the travelling road, which is an intake—a very questionable practice—but that was not not immediately afterwards—and the following that is "which at this point is a return.")

28147. Mr. Lyngstøl. Q. Now, at the time the men were working in the 4th Right pillar, does not it necessarily follow that the air had to come up the travelling road?

28148. Mr. Wade. I object to this. How can I tell how the system of ventilation was when he was not there?

28149. A. (To Mr. Lyngstøl.) I do not know.

28150. Mr. Lyngstøl. Q. Do not you see that the only way the men could get air in the 4th Right pillar was through the travelling road? The way the men working in the 4th Right pillar would get their ventilation would be through the air coming up the travelling road? A. But that travelling road was a return.

28151. Q. But the men must have an intake air from some quarter, and that quarter must have been up the travelling road? A. No, I do not think they got the intake air from there; I think they got the intake air from some of these places here (indicating the south east corner of the goaf).

28152. Q. Do you mean to say then that the air would come through the goof to these men? A. Yes.

28153. Mr. Lyngstøl. That is what I put in your notebook.

28154. Mr. Robertson. Q. This is working in a bog, I think, we have an evidence of the system of ventilation then.

28155. Mr. Lyngstøl. The witness has made a note which he withdraws for a certain reason; and I want to show that he had no reason for withdrawing.

28156. Mr. Beville. With what object?

28157. Mr. Lyngstøl. For the purpose of showing a negligent system of working the mine at the time the 4th Right pillar were extracted.

28158. Mr. Beville. Could you say that that had any possible connection with the explosion—or accident, whatever it was?

28159. Mr. Lyngstøl. Perhaps I could not do that, but I did not take it that the scope of the Commission limited me to show a particular negligence which helped towards the disaster. I took it that the Commission allowed me to show any negligence which might have caused a disaster. If I show that foul air was allowed to rush through the goof to the men, it will be seen that it might have had the effect of carrying fire down to men, with naked lights.

28160. Mr. Robertson. Q. How can you show that, when we know nothing at all about the system of ventilation at that time. We have had no evidence as to the system of ventilation there, and none of us knows?

28161. Mr. Lyngstøl. I submit with every respect that it is clear that it could only come from the goof.

28162. Mr. Robertson. Why not? It might have been conducted by a split from the return.

28163. Mr. Lyngstøl. But that would be down the travelling road, and the air coming through that goof goes down the travelling road.

28164. Mr. Beville. Q. These questions all touch on a chain of affairs which we absolutely agree and had agreed to exist at the time the accident took place; and therefore, they touch something which cannot in any way be connected with, and as far as I can see, absolutely disconnected from, the accident.

28175.

25375. *Mr. Spangli* | With all respect, if the air sailed through the gash, that would be air, possibly carrying fire-damp, coming out as to the return airway right up to the door of the disaster; and that return airway was a travelling road.

25376. *Mr. Hansen* | If the air was making through there, that of course might carry fire-damp through to the 4th Right, and that may be material to show the probability of the gas having got through in that way. But how can it be material to this inquiry to go into the question of whether or not, under a former state of things, that may or may not have affected the head or tail of men who were working there on an occasion which was completely over, and as much which was absolutely closed before the accident happened?

25377. *Mr. Spangli* | I was trying the foundation to call this witness down to the fact that the way the fire-damp would come out was by the air sailing through the gash, and not by a fall at all. I wanted to put him off the fall altogether by showing that the natural way of ventilating the mine would drive the fire-damp right out on the 4th Right.

25378. *Mr. Hansen* | That may be material for the purpose of showing how the accident happened; but to go into the question of the treatment of the men on a former occasion for the purpose of illustrating the management in relation to that past action—[interrupted].

25379. *Mr. Spangli* | I will not go into that matter now, Your Honor.

25380. *Q* Now, you say that the air would make down the east and the north side of that gash down towards the 4th Right? *A* I say it could do so.

25381. *Q* And, in your opinion—[interrupted]? *A* Probably it did do so.

25382. *Q* Well, that being so, there would be a current made of air to clear the gash of any fire-damp that might have been in it? *A* No; that air would circulate round the edges, but it would have some of the lower parts overclouded.

25383. *Q* But, if the attraction drawing it was in the 4th Right, would not it drive the air right through the gash? *A* It would not come straight through. The air current would certainly not pass straight through the middle of the gash.

25384. *Q* Then you desire this note that you had here to stand? *A* What note is that.

25385. *Q* "Unobstructed air-current from Daylight tunnel passed through this gash, and then on to the travelling road, which is an intake—a very questionable practice?" *A* No, you are making the two parts, the part taken out and the other part.

25386. *Q* Do you say now that the air sailing through the gash would not be sufficient to sweep it clear of any fire-damp? *A* I say that there would be still some fire-damp left in the lower parts of the gash, beyond where the air current could get.

25387. *Q* From where would that fire-damp come? *A* It would be generated partly by the coal and partly by the strata.

25388. *Q* And you think that fire-damp did come from the strata above the seam? *A* I think that fire-damp was in the strata above the seam, and it was forced out by a fall.

25389. *Q* You have never heard of fire-damp being in the strata above the seam in any of the Northern collieries before, have you? *A* No.

25390. *Q* There is a mere assumption on your part? *A* Well, from the many cases where fire-damp has been found in along drives, apart from the coal altogether.

25391. *Q* Is the Southern District? *A* No.

25392. *Mr. Bruce Smith* | *Q* Do you mean in England, or in the north? *A* I think there was one case in Newcastle (N.B.W.), but the principal ones are in England.

25393. *Mr. Spangli* | *Q* Then do I understand that this fire-damp was purely from the coal and partly from the seam above the coal? *A* I think that both would tend to generate fire-damp—fire-damp would be generated.

25394. *Q* And you think that no current of air sailing through the gash would be sufficient to have driven it out through the 4th Right? *A* I think that no current could have got to the part that I have spoken of.

25395. *Q* That would be because of the size of the fall? *A* Because it would be too high.

25396. *Mr. Spangli* | *Q* Have you got that clear? do you mean that there have been two falls in the 4th seam gash? *A* I suppose falls were going on more or less continuously.

25397. *Q* Would not the 44 yard square fall last? *A* It may have been as you assume, that the 44 yards square fall last, and was that followed by a subsequent fall of a larger area and greater height.

25398. *Mr. Spangli* | *Q* Listen to this evidence given by Mr. Leach [par. 25343].

"With I have also and in full swing and then, and I have often seen it get to go up above, and we could not. Tomorrow would fall down pretty high." It is a place like that 10 or 12 feet up, and the air is clear in the 4th, it is a matter of impossibility for a person to get up between the pit and the seam.

And [par. 25345].

"Yes, the Man Working that was, that is, the 4th Right was, the was clear down; you could not get up there; it was below down. And the place is other side—[interrupted] below it was 10 feet, and that's all, and the [interrupted]—an extra side of there is that also below pretty high."

Now, Mr. Leach told us that there were a couple of pillars only to be extracted when he left, and Mr. Rogers told us that the gash had been attracted as far as possible over this 44 yard square area; do not you see that, if Mr. Leach, who saw these pillars, is correct, no gas would be forced out from 20 or 40 feet above the seam. The aperture would be blocked up by the fall? *A* It would not be made airtight. You could not get in to test for it, but it is certainly would not be as tight or gas-tight.

25399. *Q* Then you do not think that the fall of the 44 yard square area blocked any gas, do you? *A* I do not think that that would force out any gas.

25400. *Q* Do you think it liberated any gas? *A* It may be possible for another fall to take place which forced out gas.

25401. *Mr. Atkinson* | *Q* If the gas was there before the fall took place, would it force it out then? *A* If the gas was there below the roof of that 44 yard square area would it force it out then? *A* Yes.

25402. *Q* What reason have you got, if any, for assuming that it was not then? *A* I have already said that I think that part would be prevented more or less effectively by the air current.

25403. *Q* Do you mean by that return air current coming down the travelling road? *A* No; I mean the air passing through or round the edges of the gash.

25404. *Q* Sailing through the gash? *A* Yes; it would be even so that 44 yard square area; and, therefore, it would be unlikely that there would be any gas there.

25405.

Witness—W. Franklin, 17 March, 1936.

- 24303 Q Now, to sum up, the whole of that assumption about a bill of the lower part is not based on any data at all? A No, it is not based on any data. It is based on probabilities, and on things that have been observed before.
- 24304 Mr. Erickson? Q On probabilities?
- 24305 Mr. Lyapin? Q On probability rather than on probability? A On probability, I think, because the higher part of the gas is the more probable place in which gas would lodge.
- 24306 Mr. Erickson? Q That may be, but is it probable that that amount fell into place? A I would not say it is probable, but I would say it is possible.
- 24307 Q Is it many possible, or a remote possibility? A I think it is very possible.
- 24308 Q Mr. Lyapin? Q In your opinion, where did the gas that you found in Morris' place come from? A In Morris' place, I think it would come from the wall. We found $\frac{3}{4}$ per cent. of gas, I do not think you mean that, though.
- 24309 Q Yes, that is what I do mean? A I think it came from the wall.
- 24310 Q You do not think it came from the distribution of the outburst? A I think not.
- 24311 Q And then something applies to the gas found in that large quantity in that back heading? A Yes.
- 24312 Q Did you test to see if that gas went from the back into the front heading? A We travelled up the front heading.
- 24313 Q Did you make a test in the front heading? A Yes; on the ceiling side of the cut-through, but that was only after we had walked into the gas and filled our lamps with it.
- 24314 Mr. Erickson? Q Witness? A Filled our lamps in the front heading, as we were passing the cut-through.
- 24315 Mr. Lyapin? Q Then there was gas right up to the cut-through, both in the back and the front heading? A Yes.
- 24316 Q In making this calculation, I think you said about 10,000 cubic feet of inflammable mixture; did you include the front and back heading and the cut-through, or did you only take the back heading mixture? A We took the front and back heading and the cut-through.
- 24317 Q You worked that out to something more than 10,000 feet? A Yes.
- 24318 Q How much? A I worked it out to 13,000 cubic feet, but that was without making an allowance for taking of the gas, which is always the case, and I make an allowance, and my there was about 10,000 cubic feet of gas.
- 24319 Q That is not one of the front and back headings, and the cut-through? A Yes.
- 24320 Q And you are clearly of opinion that that gas was given off by the face of each of the headings? A I think so.
- 24321 Q If the conditions was travelling as it is shown on the plan to have been travelling on that date, do you think it would have accumulated? A On the day we tested it.
- 24322 Q On the day of the disaster, if the conditions had been travelling, as it has been shown to have been travelling, up the back heading and through the cut-through on to Parrell's place, do you think that gas could have accumulated? A That gas would not be there on the day of the explosion, that is what we found afterwards.
- 24323 Q Do you think that quantity of gas did accumulate within two days? A Yes, but it was because the ventilation was all shut down.
- 24324 Q Do you think that the coal was giving off gas to that extent in two days? A Well, part of it may have been given off by other places besides those two places.
- 24325 Mr. Erickson? Q If the gas was not in the heading at the time of the explosion, how could there be a second explosion of gas? A I say that this gas which I have recorded there was not there at the time.
- 24326 Q Quite so, but what other gas would be there? A The gas that I have recorded and estimated to amount to an explosion—that clearly applies to the gas found after the explosion, but I do not mean to say that there was no gas there at the time of the explosion.
- 24327 Mr. Lyapin? Q Do not you say that there was gas there at the time of the explosion?
- 24328 Mr. Fisher? Q Yes, more that that was here? A Yes.
- 24329 Mr. Lyapin? Q And that that had all been consumed, and the place cleared of gas by reason of the explosion, and, within four days afterwards, this considerable quantity accumulated there? A Yes, but that must be qualified by saying that the ventilation was destroyed.
- 24330 Q That does not matter, I want to show that the boom was giving off gas. It was clear that, all along the face, or the majority of the face, along the 4th Left, the coal was giving off gas as shown by the results you got in Franklin's place and other places along there? A I think it is quite evident that that coal was giving off gas.
- 24331 Q And I suppose it was quite evident that it had been giving off gas for some time? A I should say that is likely.
- 24332 Q Where the outburst? A No, I cannot say that.
- 24333 Q In your opinion, it is not probable that the face along the 4th Left and the foot of the back heading had been giving off gas for some time before the explosion? A Yes, I think it is probable that they had been giving off small quantities.
- 24334 Q And, in your opinion, had the back heading been examined daily, do you think that gas would have been detected? A Yes, I think it would.
- 24335 Mr. Erickson? Q With as that accumulation, what other place can you suggest that the gas would be likely to come from, and land in that back heading? A Well, any gas that was present in Morris' place would probably move up that way, the air current was going in that direction.
- 24336 Q That is the only place on the vent being current? A Yes.
- 24337 Q So that the gas that was in the back heading could only come from Morris' place and the back heading? A Yes, assuming that it is given off entirely by the face, but it may be given off by the end in a general way, by the sides of the pillars.
- 24338 Q In other cases it would have the length of the heading? A Yes.
- 24339 Q It would only have the length of the heading from the 5th Right? A Yes.
- 24340 Mr. Lyapin? Q Now, in your opinion, if the foot of the 6th Left had been examined and every morning, do you think gas would have been detected, apart from the back heading? A The 6th Left?
- 24341 Q Yes, where those men were working; do you think gas would have been detected there before the disaster? A No, I do not think so.

16344. Q. That's because they were using a safety lamp for the examination, but if they had been using a hydrogen lamp, do you think it would have been detected? A. Yes, I think it is probable they would detected some small quantity of gas.

16345. Q. And I think you have a note here that the fish left in a dusty road? A. Yes.

16346. Q. You observed that to be the fact? A. Yes, I saw that.

16347. Q. Was that the dustier part of the mine that you saw, the fish left? A. It was certainly the dustier part of the heading road that I saw.

16348. Q. Now, dealing only with the heading roads, that is, how many inches of dust would you say had accumulated on the floor of the fish left? A. It might be an inch deep.

16349. Q. Before the disaster? A. Yes.

16350. Mr. Wade: I do cannot say before the disaster.

16351. Witness: I cannot say before. I can only say what I saw afterwards.

16352. Mr. Cynight: Q. Do you think some of it had been there before the disaster, or was it all placed there after the disaster? I think some of it had been there before the disaster.

16353. Q. Speaking of the travelling road, how much did you observe on the travelling road? A. I noticed on the sides of the travelling roads there were occasional patches of dust.

16354. Q. And on the floor? A. It was fairly hard and smooth where the men had walked.

16355. Taking the No. 1 travelling road? A. Yes.

16356. Q. Was not that dusty either? A. Some parts of it were. There were some patches of dust by the side of the road away from where the men were walking.

16357. Q. About how deep would those patches be? A. About an inch deep in some parts.

16358. Q. Is that it in certain that you observed conditions there, which were there before the disaster, which were the person in custody events? A. Indiscreet in what way?

16359. Q. As to be in some dust explosion or certain contingencies happening? A. Yes, if there had been a dust explosion.

16360. Q. Or if there had been an ignition of fire damp? A. Yes.

16361. Q. In either the headings or the travelling road, if there had been an ignition of fire damp, or a fire-damp explosion, there were conditions there suggesting to explosion? A. Yes.

16362. Q. Then, what, in your opinion, should have been done to rectify these dangerous conditions—that is, to render the dust harmless? A. Well, watering would have rendered it harmless.

16363. Q. And, in your opinion, had the fish left travelling and rope roads been thoroughly watered, would the extent of the disaster have been mitigated? A. On the fish left rope road.

16364. Q. I judge that the disaster split from the No. 1 Right and went along the fish left, if it had been watered, the extent of the explosion would have been mitigated, in your opinion? A. And all the roads have watered, there certainly would not have been the damage done that has been done.

16365. Q. The explosion would not have been as extensive? A. No.

16366. Q. And a number of lives would not have been lost, considering the number of men along the fish left, if those roads had been well watered, and the dust rendered harmless, do you think there was would have been injured? A. Well, I think there would not have been the loss of life, and the destruction, if the roads had been wet.

(The Court then adjourned until 3 p.m.)

Adjournment

(On morning of 3 p.m. Mr. W. H. Pratt attended to take shorthand notes of the evidence and proceedings.)

WILLIAM HUBBARD previously sworn, was further examined, as under:—

He answered by Mr. Frank Smith:—

16367. Q. You were asked a great number of questions by Mr. Wade as to how this explosion worked out in detail. You do not undertake to say how it worked out? A. I cannot. It is impossible to say how it worked out in detail.

16368. Q. Have you any difficulty in discussing the wind theory as impracticable and impossible, as far as your knowledge is concerned? A. Since when?

16369. Q. Whether you can account for the different steps in the explosion, or not? A. Whether I can account for them or not, I have no business in saying that the wind theory is impracticable and impossible.

16370. Q. Have you any doubt as to the presence of gas and dust in the explosion? A. Since whenever.

16371. Q. You have no doubt that there was gas in the fish left? A. I think so.

16372. Q. Now, when you gave evidence—speaking of which was read to you—you say:—

"I am almost certain Mr. Ackerson was close behind, because by had the disaster lamp, and we put on our hydrogen lamps long before we got to the point of looking, because we thought the atmosphere was rather poisonous in going up to the place, and Mr. Ackerson followed us up very closely to give us light."

Q. Do you mean up to the stage? A. No, up to the edge of the stage. I do not suppose there was room for three people on the stage, but he was close by, I think.

Q. Well, when you had found this 1 per cent. of gas, did you report it when you came down to the others? A. Yes, it would be spoken of.

What do you mean by "it would be spoken of"? A. I thought it would be spoken of to Mr. Ackerson.

16373. Q. And then you were asked:

"Q. Are you sure of that? A. I cannot swear to it because I have not it in my notes."

Your note was a little made at the time? Yes.

16374. Q. You have spoken to Mr. Ackerson since about your notes? A. Yes.

16375. Q. Mr. Ackerson has assured you that he has no recollection of it? A. Yes.

16376. Q. That makes you less certain of having told him? A. Yes.

16377. Q. You were not certain before? A. And I am less certain now.

16378. Q. Are you sure of the fact that you found the 1 per cent. of gas? A. Yes, I am positive that 1 per cent. of gas was found, and put down at the time in my notebook.

Witness—Mr. Henthel, 17 March, 1933.

22319 Q You said in answer to Mr. Wade that there was very little evidence of contradictory force? A I think I said, afterwards, excepting two stoppages in the 1st Right which had been blown in one direction.

22320 Q They are contradictory in the majority of three ledges of the 1st Right? A Yes.

22321 Q And, therefore, you think that there was more than one explosion? A I think so.

22322 Q You were about to give Mr. Wade some instances of gas forced in the mine? A Yes.

22323 Q You have met with that in the north? A Yes, and I also met with it in Durham, where we were troubled with gas in a stone drive.

22324 Q After the mine was driven? A Thirty or forty feet at the time when we were troubled with the gas.

22325 Mr. Henthel. Q Was it above or below the seam? A Above and below. We were driving through some dipping strata.

22326 Mr. Brown Smith. Q How did you identify it with the coal—how could you tell that it had not travelled up from the coal? A I could not tell that it had not. It was above and below the coal.

22327 Q Would it come from the stone? A Yes; we were working in stone, and yet there was a fairly large amount of gas to be disposed.

22328 Q You say that the gas was above and below the seam and below another coal? A Yes. There was one seam above and there was another coal below it. The gas was forced in the stone, and I am satisfied that most of it came from the stone itself.

22329 Mr. Henthel. Q What sort of a seam was it—and what sort of stone? A We were in fairly soft shale, but not in bituminous matter.

22330 Mr. Robinson. Q It was shale between two seams? A Yes.

22331 Q Is there any parallel between that and Mount Kemble, where there is no seam higher up? A I should think the coal strata would give off gas.

22332 Mr. Brown Smith. Q You had 120 feet of it? A Yes, about 120 feet of it between the two seams.

22333 Mr. Robinson. Q That was in shale? A Yes.

22334 Q The strata in Mount Kemble is stone? A Yes, but I have known another case where there has been gas in stone.

22335 Mr. Brown Smith. Q Did you find gas there? A Yes.

22336 Q You based the opinion that the gas was in the stone? A No, I acknowledge that a fair amount of it would come from the coal proper.

22337 Q You think it is possible, where coal is taken out of a large vein, and there are hills above the coal level, that gas will be forced there? A Yes, I think it is likely that gas will accumulate there.

22338 Q From the coal or from the stone? A Fairly from both.

22339 Q You think that, if the stone has fissures, the gas will work its way up there? A I think it will be given off from the joints, but whether it is generated from the coal mass below, or whether it helps there, I am not a sufficient chemist to say.

22340 Q Have you known of this in the northern coal fields? A I have not found it; but I think there was gas at North Warrick, but I have not seen it myself.

22341 Mr. Henthel. Q Are there any reports on it? A No, I think not. If there are, they are ten or twelve years ago.

22342 Mr. Brown Smith. Q After the coal is taken out, and what is called the blocks are left. When they fall, and the material above falls, that gas would be got from the blocks in the higher part of the strata? A Yes.

22343 Q And when another fall came the gas would be swept out? A Yes.

22344 Mr. Robinson. Q That is not gas from the stone.

22345 Mr. Brown Smith. Q I am taking it upon them that altogether. You do not undertake to say from what part of the rock this gas comes? A No.

22346 Q Or whether it came from the stone, or escaped from the crevices of the gas? A No, it is quite immaterial to my point where it originated, so long as it came out of them.

22347 Q Since you began your evidence, you have made access of three important hills of stone and three offices. One, I think, was at the Lambton Colliery? A Yes, on the 13th of August, 1930.

22348 Q What was its extent? A Twenty-four acres of roof fall.

22349 Mr. Wade. Q Is this from an official report? A It is an extract from my official report.

22350 Mr. Brown Smith. Q What did the roof consist of? A Strong sandstone, and the thickness of seam was about 400 feet.

22351 Q What was the effect of the fall on the dust? A There was a shower of dust observed at the houses, which was 30 chains away, and the air current was reversed at the tunnel mouth, which was 164 chains away. At one of the chucks there was a crack open, which two men were working. This was in the "Chatter Box" shaft, and it was lifted 5 feet by the rush of air. That is two years ago.

22352 Mr. Wade. Q How far was the shaft from the nearest point of the fall? A I cannot say, but I think it was nearer than 30 chains.

22353 Mr. Brown Smith. Q This crack with two men on it was 304 chains, or 2,400 yards away? A No, the air current was reversed that distance away. The crack was less than 30 away.

22354 Q The crack was lifted locally for 2 feet? A It was lifted locally for 2 feet with the seam on it.

22355 Q You do not say that the 24 acres of unsupported roof fell on one time? A No. The seam was about 7 feet thick. There were 8 yards beds diving and upward pillars. The pillars were unable to support the roof and it weighed down on them, broke them, and fell.

22356 Mr. Robinson. Q Was it a crash as a fall? A It had the same effect as a fall. It was a heavy fall, after the pillars were broken.

22357 Mr. Brown Smith. Q The case depends on the amount of force which resulted from the fall, and which had the effect of decomposing itself with the two men on it, to some distance, although a third of a mile away.

22358 Q Was that a greater force than the force caused in the Mount Kemble Mine? A I would not say greater.

22359 Q Is great? A Not quite as great.

22360 Q Was it approximately so? A Yes.

22361 Q The force was nearly the same? A Yes.

28422. Q Was there a single man or horse hurt in any way? A No. There were a large number of men in the mine at the time—a number of men being on the roadway—but none was hurt and none injured.

28423. Q You have had experience of a fall in connection with Whitcomb and Sulphur Island Colliery? A Yes. With a fall in connection with the Whitcomb and Sulphur Island Colliery, on the 24th of August, 1886, when 25 acres of roof fell. In this case 4-yard pillars had been left.

28424. Q What was the cause? A The roof was 550 feet.

28425. Q What happened? A It occurred on a Sunday. It forced air out of the mine, and then returned the air current at the downcast shaft, and blew dust out of it.

28426. Q How far was that from the scene of the fall? A 700 or 800 yards. Is there dust out of the top of the downcast shaft?

28427. Q What were the dimensions of force? A Excepting that the dust had been driven a little in one side, and that dust was blown out of the shaft, there was no other sign of force to be seen. There were three men in the path of the blast, and they were all right, excepting that one man had his eye cut by falling against the ribs of the shaft as he was running away.

28428. Q There was a second fall there, was there not? A There was another fall at Whitcomb and Sulphur Island on the 1st of October, 1893. There were the same sized lands and the same sized pillars as before, and there was 240 feet of roof.

28429. Q What was the effect? A The dust and air were driven out along the haulage road with great velocity. Several persons, including the manager and the colliery manager, were in the down path of the air blast, and their heads and faces were pined with coal-dust which was afterwards blown out of the top of both shafts.

28430. Q How far away were the nearest effects? A In that case the dust was blown out of both shafts, the upper and the downcast shaft. The upper shaft would be the nearest.

28431. Q Beyond the pinning of the coal dust, was anyone hurt? A Nobody was hurt, and nobody was injured. I may say that my son was in that trouble, and he gave a very graphic account of the shock. He was partly blinded over, and his light was lost.

28432. Q The blow blew him along? A Yes.

28433. Mr. Alderson. Q You might call that a shocking example of the evil of small pillars? A Yes, I certainly would do so. It shows the necessity of having larger pillars. Hence then these pillars have had larger pillars.

28434. Mr. Alderson. Q 8-yard pillars are exceedingly small? A Yes. But 8-yard pillars are greater than 4-yard pillars. Twenty or thirty years ago it was common to find 4-yard pillars in the Newcastle district.

Examined by Mr. Roberts :—

28435. Q Do you remember the 5th of August, when you were in company with Mr. Alderson and myself, and went to the back heading of No. 1? A Yes.

28436. Q You found no gas then? A No.

28437. Q The heading was still draught? A Yes, but the stoppings had been put on; and the force of air was up to the permanent draught.

28438. Q You forced no gas? A I do not remember having forced any gas.

28439. Q Do you not think that the condition of the place on the 5th of August, after the explosion, when the heading was draught, would give a fair idea as to the condition of the place prior to the accident, with the heading up, as in the heading from gas? A Provided there had been as much air travelling up to the permanent draught before the accident as there was afterwards, but of that I have no knowledge.

28440. Q Have you any reason to expect that the ventilation, in its ordinary course, would be any less effective than after the accident, where the ventilation arrangements had been partially damaged? A After the accident, these things may have been attended to, and everything made closer than before.

28441. Q I do not think much could have been done. It was only a week or two or five days after the accident had been discovered? A The stoppings had been put on, which is a material thing. I was satisfied with the air passing upon the time we went there, because even if there had been less air there was sufficient to go to the face.

28442. Q Have you any reason to believe that there was less current after the explosion than before? A No; but I think there was more after the explosion than there was before.

28443. Q Why more? A Because I think, having to view the fact that gas was found there on the Monday, special attention would be given to the putting in of stoppings.

28444. Q The gas was taken from several stoppings, if given, would reduce the entering of the heading shaft? A They would reduce the stoppings. After removing them, they probably thought that the heading shaft did not require reducing, as there may have been sufficient current going in without reducing the heading.

28445. Q Have you any reason to know that the heading was draught before or after the explosion? A I should say that it was draught by the explosion.

28446. Q Have you any reason to believe that this place, having an air-current, would show any signs of gas? A I should say so, provided I was satisfied that the air current did get up there.

28447. Q What reason have you to think that the air did not get up there? A Perhaps the door was not as close before. These things are attended to better after an explosion than they are before.

28448. Q Do you suggest that the ventilation was not properly attended to by the Manager? A I only say that I think there was not sufficient air going up to the face of the place to keep it clear of gas before the explosion.

28449. Q Why do you say that? A Because I cannot imagine how the burning took place up there without the gathering of gas. The next thing to search for, being satisfied of that, is the most likely place in which there might be gas, and I think that a likely place is the 1st Right heading.

28450. Q Would not a coal-dust explosion cause the burning? A Yes. But whether there was coal dust up there to carry that explosion to the face or not I am not satisfied.

28451. Q Well you are not an eyewitness? A I did, in the back heading, but there are several headings in that heading that would be free from dust.

Witness—W. Kemble, 17 March, 1935

24437 Q Supposing there was no barrier at all, that place would get the force of the air, and, having been standing for several months, do you not think it is probable that no gas could possibly reach there? A I do not think that applies. You say it would get the rest of the air in the heading, but whether the force of the air went in the face or not is another matter.

24438 A Do you admit, then, if the ventilation was in its normal condition, the lack heading would be kept clear of gas? A I do not say that. If the ventilation arrangements were as favorable before as they were afterwards, the heading would be clear, but whether they were or not I could not say.

24439 Q You say nothing was done to the contrary, they may have been? A They may have been.

24440 Q Do you recollect being in the 14th Right with that same party? A Yes.

24441 Q Do you recollect a crowd which was bound 4 or 5 yards inside, which you looked upon as having come from the 14th-right road? A Yes.

24442 Q Do you recollect any group further in, near the waste? A Yes. I was asked on that last week, and I did not recollect. Since then I have thought over the matter, and I am inclined to think you were right, and that there was a group there, but I did not recollect it last week.

24443 Q Do you recollect the crowd near to the waste? A Yes.

24444 Q Do you recollect in what direction that was blown? A No, I do not think I do, but, speaking without distant recollection, I should say towards. I remember the crowd was well.

24445 Q Do you recollect which way the people were blown? A Yes, I think they were blown head over towards the gate. I am inclined that was so, although I did not make a note of it.

24446 Q All those important instances of force having been suffered by one or other of the party, would you be inclined to agree from that that the force was driven up? A I am inclined to agree that there were some large force going in.

24447 Q I think that you implied that the force was due to a backrush? A To a contrary.

24448 Q Was a very strong? Would it not be in accordance with your own theory of gas having been ignited on the travelling road? A I think it would travel in an opposite direction, because the gas pushed was only the power of other gas coming out, and it was really ignited at that point.

24449 Q Would not the force be really blown in the 14th Right as in another direction? A It probably did. I think the second crowd was forced, although I think the first was scattered.

24450 Q Do you mean the light from the bell? A I mean the ignition when the gas was lighted.

24451 Q If that gas had been ignited some way from the main road, would that keep it back there be considered with an explosion? A The dust which Mr. Webb referred to was in the travelling road.

24452 Q Was, at a corner of the 14th Right—the main heading road? A Is that so?

24453 Q That would not be quite so consistent with a force going into the 14th Right as with it coming outwards? A I think it would.

24454 Q Do you believe a group were so a mine where gas is frequently found with an ordinary flame? A Yes.

24455 Q I take it that that would not exclude Mount Kemble? A, I do not know how often you was found there with an ordinary flame.

24456 Q You say frequently found? A Yes. I say that a group was so one in which gas is frequently found by the flame of the ordinary safety lamp.

24457 Q How do you define Mount Kemble? A From the evidence given, and from what I know, I should say so, it was not a group mine, because gas has been rarely reported. Whether it has been found or not is another matter.

24458 Q Then, would you consider it necessary to advise the Kemble Company to work with safety-lamps? A I think it is necessary they should do so. I think they are now in doing so.

24459 Q How do you reconcile that with your opinion that it is not a group mine? A It does not necessarily follow that, because mine is not a group mine, safety lamps should not be used. Lamps should be used in a mine in which gas has been found.

24460 Q Do you say that a group mine is a mine where gas has been found? A Not necessarily.

24461 Q The evidence goes to show that gas has been found at Kemble, but not frequently. You never found it there, and elsewhere. A Therefore you would not define it as being a group mine, but I think they are right in not using lamps.

24462 Q You think it is necessary to use safety lamps in a mine which you do not regard as being a group mine? A Yes. They should be used where gas has been found, whether in large quantities or otherwise. The question is what causes you attach to the term "group"? It is only a matter of degree.

24463 Q You think that all the explosions have happened in the so-called only mine? A Not in all of them.

24464 Q In many of them. You say you would not consider Mount Kemble a group mine? A Under the definition—no.

24465 Q Would you consider Barrow a group mine? A No, I have no knowledge of it—only from hearsay.

24466 Q Would you consider Dudley a group mine? A Yes.

24467 Q You did? A Yes, in the mine in which I have defined it, that is, that gas was found frequently.

24468 Q Did you ever suppose the Dudley proprietors to use safety lamps? A No, not in the mine except—although on one occasion the experience of using safety lamps was talked of between Mr. Humphrey and myself. There was never any formal request made.

24469 Q A number of serious accidents have occurred in mines, which—on my list—on only safety lamps? A There are not any more in the West which is group, except the Hoxworth.

24470 Q Probably not, according to your definition, but the question is—what can be done by the way of safety, or vice of what has occurred? A It all depends what meaning you attach to the word "group". The amount of gas is only a matter of degree. In some cases you find gas every day, and in some places you only find gas once in a week.

24471 Q Do you consider it necessary to use safety lamps in a mine which, according to your definition, is not group? I could not say that.

24472 Q You did say so? A I have already said that safety-lamps should be used in all mines in which gas has been seen. I have said that, I think.

24473 Q Coming to the question of working the waste. I think you said there was no special effect, unless the roof, and sides, and floor, were worked? A Yes.

25498. Q If you have a road where, by reason of injury to the roof, water is not permeable on the roof, and it is loaded with dust, what good could be effected by watering on the floor and on the sides? A Very little good, if it were a question of that thing.

25499. Q Apart from that, would not the dust lodging on the timbers carry on an explosion? A Yes. And generally the dust on the timbers is the most dangerous, because it is much finer. There is more danger in it than even in the dust on the floor.

25500. Q If you water the headings road, and there are three or four or half-a-dozen other roads, equally dusty, leading to the same district, I presume you would say that an explosion might travel by them? A Yes, you would only water the danger to a certain extent; but you do not remove it, if there is not sufficient watering.

25501. Q The watering, to be of any practical value, must be complete and thorough? A Yes; the watering may be effective on one road, if it is a question of that thing.

25502. Q I am not suggesting that should not be watering in the vicinity of that thing; but what is the practical value of watering the floor and sides of a road and leaving the roof untreated?—as if there are five or six roads which are not watered? A That would be of very little value, so far as the results of an explosion are concerned.

25503. Q Some witnesses have found a difficulty in ascertaining at any rooms for the absence of evidence of flame. From what you tell me, and from what you have read, can you say whether that is not a first step of nearly all explosions? A I think I can say that there have been cases observed where there has been a fair amount of damage done, but the results were not dusty.

25504. Q I mean, may you not, after a large explosion, find a complete or absence of evidence of flame, or of smoking, over a considerable area? A Yes.

25505. Q Have you read a report of one of the last explosions in Wales—in the Abergeew District? A That is the district—do you mean at the McLaure Colliery?

25506. Q Yes, it is. That is the district—

There was comparatively little damage at first having been developed at the bottom of the shaft—and was throughout the workings it was very slight. The ground level, especially, was covered in the rocks among which, at A and B, temporary falls occurred. B—There is a certain amount of flame or heat was indicated in the position which had once exposed, really in the shaft, and about distance from the dip heading; but there was practically a total absence of mining?

A I have read that.

25507. Q Do you agree with that? A Yes, generally. You see something important at the end about watering, too.

25508. Q Then there was nothing in the circumstances of Reville—the apparent absence of flame—immediately with an explosion of the damp and coal dust? A Nothing important.

25509. Q Do you notice No. 1 main road and main tunnel? From the lowest point to the position, was it not wet? A Yes, part of the road was wet. In one part of the main tunnel there was a dripping of water from the roof.

25510. Q Was not the main tunnel wet up to the position? A I would not say it was all wet.

25511. Q Was it not damp? A I think there would be places where there would be dust on the roof and the sides, if not on the floor.

25512. Q You have paid some attention to General Bly's No. 10? A I have.

25513. Q Do you not think there should be some attention in that rule with advantage to all concerned? A I think it could be amended with advantage.

25514. Q It might be looked down? A And made more explicit in parts.

25515. Q Have you found that the strata, exposed in the shafts in New South Wales, are translucent? A As a whole I should say not, but there have been some where it has broken away, and broken.

25516. Q Is it not offered more by atmospheric influence than the strata you are accustomed to meet with in the British coal fields? A Yes.

25517. Q Would you approve in future of all shafts being lined? A Yes; all the important ones—such as the main ones.

25518. Q The small ones where men travel up and down? A Yes, I agree with it. I think it would be safer and more economical to the owners in the long run.

Examined by Mr. Reville.—

25519. Q In speaking about the McLaure Colliery, you said there was no important reconstruction about watering on the end of the report. What is it? A I can give it to you. It says that the roads were provided with water pipes 1½ inches in diameter, and that they were provided at any 40 yards.

25520. Q What did it recommend? A It did not.

Think, perhaps, the best practical good of sufficient watering looking to the effects of what would otherwise have proved a very widespread and much more disastrous effect. It is certainly an object lesson for all mining managers.

25521. Q In view of that statement, do you approve of watering generally? A I do. It makes the roads better; and in the event of an accident happening it makes them safer.

25522. Q Coming back to this fall in the 25-acre field. You believe, from what you have been told only, that there was any fall there? A Well, it is not necessary that I should be told that there was a fall, I know there was one.

25523. Q I am asking you—your belief a fall took place at the 25-acre disaster took place? A Not from what I have been told, but from what I have been able to see. Having regard to the close work of the stone at that place, I am satisfied that a fall took place at the time of the accident, and did not finish until afterwards.

25524. Q What evidence have you to offer that the fall took place before, if you say that the stone was clean? A I infer that the stone which had fallen had been the gas out of the gas?

25525. Q Was all the stone clean? A In that part.

25526. Q Would not that indicate that the fall took place after the explosion? A That part came down afterwards, but it does not follow that the lower part did not come down before.

25527. Q Have you any definite evidence that a fall did take place? A No, I have not, you can only reason from probabilities.

Wagon—W. Warden, 17 March, 1902.

25134. Q Is not that the evidence to the effect that the fall took place subsequently? A. The other part may have taken place subsequently. But the other part occurred before.
25135. Q Is there anything to guide you to the belief that there was a fall in the lower part of the gash? A. Nothing beyond the probability that both do occur and do force out gas, and in some places that gas is ignited.
25136. Q Is it not likely that the gas came from some other place, and that the shock brought this fall down? A. It is possible, but not probable.
25137. Q You do not think it probable? A. No.
25138. Q You hold on that an explosion took place in the back heading? A. I think an ignition occurred there.
25139. Q Would there be an explosion there? A. There would certainly be an explosion of a kind, but it would only result in greatest intensity when it got on the main road and got back of the shot.
25140. Q Was there a separate explosion in the back heading? A. No, as far as I am concerned. It occurred right along.
25141. Q The initial explosion took place in the back heading? A. Somewhere at the junction of the travelling road with the road going down from the 4th Right.
25142. Q Do you mean the first of the back heading, or the 4th Right? A. I mean the 4th Right.
25143. Q And you say that an explosion also took place near the first? A. Yes.
25144. Q What leads you to suppose that the explosion in the back heading, near the first, was subsequent to the explosion in the 4th Right? A. Because the indications of force on the rope road point in the 4th Right as having been the starting point.
25145. Q That is your ground for putting the initial explosion there? A. Yes.
25146. Q You say that the explosion in the back heading was a separate one? A. It was merely a separate one. It was all one, but there may have been an interval.
25147. Q You were in doubt whether the flame extended to the back heading, or whether the gas ignited from there? A. I am not satisfied which.
25148. Q You are not clear about that, now? A. I am not certain now.
25149. Q You think that a fall took place in the 4th Right? A. Yes, I am clear about that. We can only look at the probability of what took place, and to what has taken place in other parts. Falls have taken place which have forced out gas from points in a gash which were beyond reach.
25150. Q What is the evidence of the force which you have been able to collect with regard to the gash? A. I say that part of the ground there was accessible to the air current, and this would not be so likely to contain gas in the lower part of the gash.
25151. Q You are assuming that a sufficient quantity of air was drawing round that gash to clear it from gas? A. I am assuming that a sufficient quantity of air was drawing round that gash.
25152. Q Suppose you were told that there was not a sufficient quantity of air there? A. I should then say that your suggestion was the more likely—that 44 yards of ground fell, forcing out the gas. I think that the probability is that the gas was forced out from the lower part of the gash.
25153. Q Do you think it is at all probable that the second fall which took place would take place almost immediately afterwards? A. I think it would follow the first one very rapidly.
25154. Q Do you think gas was brought out by the first fall? A. It is possible, but not very likely, seeing that the air current had come to that point.
25155. Q You think the first fall actually blocked the airway, but did not bring the gas out, but that the second fall raised the disaster? A. The second fall, induced by the first fall, brought out the gas.
25156. Q Do you think that the gas would go out by the gash or by the return airway? A. I think it is more likely that gas would be forced out by the return airway.
25157. Q What quantity do you think went by the return—more or it would circulate higher up the gash? A. I have made no calculation.
25158. Q How would the gas settle down? A. The higher part of the gash would settle down, and that would cause the gas to come out.
25159. Q Have you ever got up in a gash? A. Yes, in numerous times. I have seen some falls, and the higher part, gradually settled down above.
25160. Q How far have you been in it? A. Between 30 feet above the mine.
25161. Q Have you found the blocks large there? A. It depends on the mine. You may have machines underneath and stails on the top.
25162. Q Can you give me any idea of the size which the second fall would cover? A. It is impossible.
25163. Q Do you assume as true? A. No, it is impossible. It is a condition for my consideration that a fall of coal took place and forced out gas. Two nights ago that was an enormous fall, without assuming what was.
25164. Q If the gas was forced out by the second fall there would be great difficulty in continued work in the way of mines? A. There would be all the more reason the edges of the fall for the gas or air to be spread out of it. A fall does not come down so close to the edge as it does in the middle. There is room outside of the fall—I mean on the outside of the fall.
25165. Q What percentage of gas would be forced out by the second fall? A. How far you get beyond me.
25166. Q It would not be the same? A. All the gas would not be forced out, but I think most of it would be forced out by the larger fall.
25167. Q What percentage would penetrate upwards? A. I have no idea.
25168. Q Take 44 yards square, would all the air be forced upwards? A. The whole of it, I think, so it would have free access to the roof, and to the return.
25169. Q You do not think any would make upwards? A. No, I think it would all be spread out.
25170. Q That applies to the second fall? A. Yes, I think most of the gas would be spread out.
25171. Q The whole of the air present between the first and the second fall would be forced out? A. I think so.
25172. Q Which way do you say the air would go? A. The tendency of what was displaced would be towards the return, and out to the return.
25173. Q If we have an area of roof as fall, and there are two openings on one side, and one on the north side, and out to the west where the fall took place would the whole of it be forced out through the opening on the west? A. Having that the return airway was nearer the fall than the other, the gas would be forced out of the opening that way.

25258. Q You think that the first fall which took place forced the whole of the air out of the 4th Right, and that the second fall forced the whole of the gas out in the same way, although you said there are other openings? A I think the principal fall forced the gas to the travelling road on the 4th Right.

25259. Q Have you anything to guide you in your belief that the struts give off gas above the coal measure? A I think I could give you an instance. We have had one or two instances, in fact, in which gas has been seen before the coal seam was reached. I think in the Killbuckworth Colliery they were 30 feet above the seam.

25260. Q What kind of struts? A Shale.

25261. Mr. Henslie. Q What was the case? A They were going in woods of the Berea shale seam.

25262. Q They passed through certain seams? A Not yet so coal.

25263. Mr. Henslie. Q They were in shale? A They were in shale and sandstone. From the top of the shale.

25264. Q Do these struts compare with the Kentucky struts? A Some of the sandstone is like Kentucky, but not much.

25265. Q Have you seen any shaly matter in the south? A No, I do not remember any.

25266. Q With your knowledge of the struts in the north, do you think it is at all feasible that gas would be generated from it? A It is quite likely that the sandstone would yield the same, the same as the shale.

25267. Q You said about Dunbar—have you any other information you can give us as to that? A I believe they had some trouble with gas in Berea before they got to any sandstone.

25268. Q What kind of ground was it? A Shale.

25269. Q You know that shale is likely to give off gas? A It is more frequently found associated with coal.

25270. Q There is more vegetable matter in it? A True shale does not contain vegetable matter, but gas is associated with shale more than with sandstone.

25271. Q Holding the opinion you do, that gas is likely to be given off in the struts, what would you suggest as a means of safety? A The use of safety lamps.

25272. Q Is that the only means? A I know that there have been wild suggestions about boring holes from the surface to liberate the gas.

25273. Q You think two holes, or shafts, are sufficient? A I would sometimes have a third one.

25274. Q Should safety lamps be used in all collieries? A In all collieries in which gas is likely to be generated.

25275. Q How would you construct them—would you wait until there had been a big fall? A You might get the first indication of gas in the old workings. Therefore safety lamps ought to be used, particularly when pillars are taken out. I do not mean it to apply to Kentucky particularly, but, where or gas has been found in the whole workings, safety lamps should be used.

25276. Mr. Henslie. Q If not having the gas coming from the coal on the question of gas coming from the struts? A It goes there is always a possibility of gas being forced out, and what I recommend, with a view of bringing about greater safety, is that safety lamps should be used.

25277. Q As a precaution against what? A As a precaution against gas being forced out of the coal.

25278. Mr. Henslie. Q Is the gas generated by the coal? A Partly by the coal and partly by the struts. I think that the gas comes out of the pores of the struts as it does out of the coal, but not in such a large extent.

25279. Q Suppose you had not received any reports as to gas, and you were following under the impression that the construction of the colliery had been carefully made, and stopping you thought that the sandstone might give off gas, what would you do? A Even in that case I should be inclined to work the pillars with safety lamps.

25280. Q What precaution would that give you, if a fall took place and forced the gas out beyond the pillars? A I should think that a mine, if laid out in a right manner, would be so designed, with regard to the ventilation districts, that the gas forced out of one district would not go into another district.

25281. Q You say that the whole of the air and the gas at Kentucky would be forced into the return airways? A Yes.

25282. Q And yet we have had a disaster at Kentucky? A Was there any pronounced fissure there between the struts and return?

25283. Q We have evidence of a door there? A I think that, if a district was laid out as I have seen them laid out, there would be no fear about using a safety lamp in the whole workings and a safety lamp on the pillars.

25284. Q Would there be so few that the air forced out would be sufficient to require a door? A I do not as to how to the idea that the air come out of the gash with fissures there. I think it is more generally.

25285. Q If the roof came down gently, the air would have been able to get on top of the struts? A The struts might have been so close that the air could not get on top of it.

25286. Q Which was the part of the roof likely to give way first—that part which was loose and hanging, or that part which was over the pillars? A That part which was loose and hanging would come first.

25287. Q Do you not think it likely that the air under the falling part would make its way to the top? A I think most of the air would be driven out. Very little would find the way through the broken part to the higher part.

25288. Q Would it not be just as likely, at the edge of the fallen parts, to go out the other way? A No, I think it would be more likely that the broken would go to the road, or it would have the air behind it.

25289. Q Do you not think that the atmospheric pressure would force it the other way? A The atmospheric pressure would force it towards the return.

25290. Q In your opinion, although there was a vacuum created by the fallen mass, the ventilation under the fallen mass would be forced against the atmospheric pressure instead of going over the top? A It would certainly be forced towards the return.

25291. Q Did you read Mr. Atkinson's evidence before you came here? A Yes, I read it as soon as he gave it.

25292. Q Before you came here? A Yes.

25293. Q Do you remember, very well, the notes which you took on the occasion of your visit? A I had them written down, but, as you see, there are several things I have overlooked and forgotten.

25294. Q Did you compare your notes with Mr. Atkinson's? A No.

Witness—W. Hamilton, 17 March, 1903.

24584. Q Did you notice that part of Mr. Ashenauer's evidence when he said that he was in somewhat of a dilemma as to the discovery of gas? A I remember reading it, but I did not strike me as being significant, otherwise I would have told him of the 1 per cent of gas I have noticed in it. It did not come to me, and the evidence in every other instance.

24585. Q Did it only appear to you to be a prominent matter afterwards? A I saw that it was a prominent matter afterwards.

24586. Q Did you not regard it as an important matter at the time? A I regarded it as an important matter at the time, and I also regarded the gas found in other places as important.

24587. Q You knew that importance was attached to the 15 acre gas? A Yes.

24588. Q And you knew that certain parties were trying to prove to the Commission that the discovery was the result of a wash blow? A In the forewitness I told me.

24589. Q And you then express to you the importance of the matter? A That did not bring to my mind the 1 per cent of gas which I had now found.

24590. Q What makes you so decided now that you did not mention the matter to Mr. Ashenauer? A I said that I thought he was with me. I am sure now that he was not with me.

24591. Q You are guided by his conversation mainly? A Certainly not. If he had been with me he would have a note of it. As he does not know of it he was not there.

24592. Q You have no note of his being there? A No.

24593. Q You held the opinion that he was there? A I said I thought he was there.

24594. Q You have been asked about Rule 121? A Yes.

24595. Q I think you are conversant with General Rule 121? A Fully well.

24596. Q That rule gives the employees power to appoint two persons to make an inspection on their behalf? A I know of it.

24597. Q Do you believe in that part of the rule when it says that the persons may from time to time appoint any two of their number, or any two persons not being mining engineers to make such an inspection? A I think that restriction should remain.

24598. Q Why? A Any mining engineer who would be likely to stir himself for the purpose of making such an inspection would be a man disappointed with the profession, and perhaps possessed of ill will towards engineers in general, and he would be an undesirable man to go into a mine.

24599. Q Do you mean to tell me that all mining engineers are spoiled and dishonest? A No, but you would get very few of them who would undertake the work.

24600. Q Why? A Because it would not pay them.

24601. Q Why? A Because their name would be coupled with other work.

24602. Q Why would it not pay them to do that work as well as it would pay any one else? A I do not think they would get as liberal remuneration.

24603. Q Have you any evidence that mining engineers would refuse to work for the mine? A They would refuse to work without pay, and it would not be sufficient pay. A mining engineer would not be available, unless he was a man out of work, and a disappointed man generally. You would have to get that kind of man to do the work.

24604. Q Then the matter should remain with unqualified men? A I think, with mining engineers, you would not get men who would be prepared to look at the matter from an impartial point of view.

24605. Q Does not the rule lay down what the duties are? A Yes, but there are different ways of carrying out duties.

24606. Q You think that the employees should be compelled to take people who are not qualified, because the mining engineers would be unavailable, and could not be trusted to do the work? A They would not be men who would do it impartially. I should like to say that there are men available from the ranks of the workmen who can do the work at the present time.

24607. Q What would mining engineers do that they might not be able to do? A They would see things which would strike them from a professional point of view, and which might be prejudicial to the owners, and they should not be allowed to see them.

24608. Q Do you mean by taking surveys? A Well, when the mine are being worked near the boundary.

24609. Q Could they tell whether a mine was crossing the boundary or not? A They would be able to offer a better opinion, and to form a better idea as to what was approximately the boundary, than a working man would.

24610. Mr. Symonds. Q Could such an examination be made use of for Work Exchange purposes? A Yes.

24611. Mr. Symonds. Q With regard to the thickness of the coal and the quality of it? A Yes.

24612. Q Could not a working man get that information best? A Not so well. He would not be so likely to do it as a mining engineer.

24613. Q You think that the working men would be so honest that they would not take a tip? A I think that the working men are quite able to do the work of inspecting, as it does not prevent.

24614. Q You think that the powers of the Act should be restricted? A No, I think they should not be enlarged. I think the men have a pretty large share now.

24615. Q Is not that a restriction? A The law is sufficiently large. They have plenty of duties as it is.

24616. Q Do you know any of the men who have been doing that work? A I know plenty in the north.

24617. Q Are they not qualified? A With a few exceptions they are well able to do it.

24618. Q Are there any who would be able to take the bearings of a colliery? A Some of them might be able to, but I am of opinion that mining engineers should not be allowed to go into a mine on behalf of the owners.

24619. Q The rule says men "who are practical working miners." I suppose you know the interpretation that has been applied to the word working? A I have heard that it excludes men from carrying the pickaxe after certain periods of time.

24620. Q After the period for which a man has been first elected? A Yes, if he has been elected for twelve months, these words would prevent a man carrying the pickaxe for another twelve months, unless he qualifies again.

24621. Q Do you think that is right? A No.

24622. Q Do you think that the word "working" should be struck out? A Yes, it is absurd to think that a man would qualify by two or three days' work.

24623. Q It would not make him a better man practically? A No.

28536. Q It would give a good opportunity of shooting him? A Yes, but the only people who could shoot him would be the people who started him.
28537. Q If the propellers need to be run and a qualified man would not start them? A Yes.
28538. Q It would be in their power to refuse to receive him? A Yes, that is how it would work out.
28539. Mr. Rankin. Q And you ever hear of its working out in that way? A Never.
28540. Mr. Rankin. Q And you ever hear of a steamshipmaster qualifying himself? A I know that one went to work to qualify himself for the position of steamshipmaster.
28541. Mr. Rankin. Q With regard to the Kellogg-Smith Colliery, is it not intercepted by a dyke? A Yes.
28542. Q Would that account for the presence of gas? A I think the gas would have been there, if the dyke had not been there. The gas was between the seams—one of the seams immediately above the dykehole.
28543. Q The gas may have found its way there through fissures caused by the dyke? A It may.
28544. Q Do you know of any seams where gas has been found excepting in carboniferous shale? A No, excepting those seams I have given you.
28545. Q Now, the gas you have found in the strata has always been between seams? A Yes, and in some cases the strata have been thick.

JOSEPH A. JEFFERIES, previously sworn, was further examined, as under—

Examined by Mr. Bruce Smith—

28546. Q I think you have made a miscalculation as to the quantity of water which would have to be removed from a mine like the Metropolitan if watering was carried out in a systematic manner? A Yes. The water to be removed afterwards would amount to 500 tons daily.
28547. Q Of course, you would have to get it in first and take it out afterwards? A Yes.
28548. Q You would not take out all which you put in? A I should allow a certain percentage for absorption.
28549. Q Can you speak of the experience of mining engineers of the effects of watering upon coal-dust, where the dust lies flat? A The general impression is that it is useless to water coal dust, if it is thick, because it simply comes off it again. Watering, without removal of the dust, is of no value.
28550. Q You say that it is the general impression in the matter which you refer to? A Some of the leading authorities in England think so. I could quote from them.
28551. Mr. Sprague. I object to that. These authorities could be put in.
28552. The Witness. That would save time.
28553. Mr. Bruce Smith. Q Will you supply a list, so that I can hand it to the Commission? A There is with me now, and I will put it in.
28554. Q You have observed yourself some results of the kind? A There was a lot of water, and you could put your hand through it and hang up the dust dry.
28555. Q The water does not penetrate the dust? A Yes. I mean that you must remove the dust.
28556. Q Now what are these authorities which you wish to put before the Commission? A It is in the second report of the Royal Commission on explosions from coal dust in mines.
28557. Q I think we have that already. Which Commission is it, the Chamberlain one? A Yes. I have marked the passages.
28558. (Copy of the Second Report of the Royal Commission on Explosions from Coal dust in Mines was handed to the Commission by the witness and marked Exhibit No. 24.)
28559. Q You can say something as to the effect on the amount of entering the atmosphere of a mine by watering? A One point is fairly a Professor Colquhoun—(interrupts.)
28560. Mr. Sprague. I object, he is going to quote from a book.
28561. Mr. Bruce Smith. Q We have about one hundred weight of dust quoted here? A It is his latest book on mining. I can put it in afterwards, if you like.
28562. You might mark the passages and give them to Mr. Sprague.
28563. Mr. Rankin. Q Can you speak from your own personal experience? A I can say that at a temperature of 77 degrees the conditions are not very pleasant in a mine which is fairly saturated with moisture.
28564. Mr. Bruce Smith. Q You state that the conditions of watering, which are held to be desirable, are also disadvantageous? A Yes, in the way of working the mine.
28565. Q That is mentioned by Colquhoun—at what page? A I cannot tell the page, but I can send it to the Commission.
28566. Q Have you seen the report of the Melbourne Mine? A No.
28567. Q Have you seen that it speaks in praise of watering? A Yes. I think you can accomplish the same object as watering in the way which I have already stated. We have never yet had an explosion with coal dust, where the high permitted explosion was used.
28568. Q You mean to say that gunpowder should be prohibited, as you suggest? A Yes; and the use of the high explosives would prevent explosions of dust.
28569. Q You have prepared some figures with regard to ventilation? A Yes. And, increasing the quantity of ventilation from 100 to 200 feet per minute, you would have to increase the horse-power at each colliery eight times the present strength.
28570. Q You mean that you would have to increase the strength of the engines eight times, and not in proportion to the quantity of the air? A Yes. It is like taking the cube of a quantity. At present some of the mines are supplying from 80 feet per minute to 120 feet per minute. To give the transmission increase, and to get 200 feet per minute taking the present power at 1 horse-power, you would require, at one colliery, 16 horse-power to provide for it. Some of the ventilating has been that origin at present, and the present engines would be useless.
28571. Q The fact would be useless to give the increased quantity of air asked for? A Yes.
28572. Q You have some correspondence relating to the coal-dust trade at Widdow which you desired to draw attention to? A I drew attention to the fact, with regard to the dust sent from the Metropolitan Colliery, that the experiments were of no practical value under our conditions of working.
28573. Q Was that done by correspondence? A Yes.

28705. Mr. Johnston. Q Was there not a explosion of gas? A It simply corroborates statement. It refers to the explosive quality of coal-dust, and it says there are instances where that has exploded through coming into contact with a naked light. It is some cases in France that are referred to.

28704. Mr. Wade. Q Is that the quotation you mean —

It is possible, however, if coal dust could be made fine enough, and more thoroughly dried with air, as properties of 1 lb. of coal dust in this case has it not, the mixture might be inflammable at ordinary temperatures, or, if not, it might be so easily inflammable that an explosion begins in it, it is scattered upon, might be propagated through it.

A Yes, that only says "might be inflammable."

[The Commission, at 4:10 p.m., adjourned until 10 o'clock the following morning.]

PROCEEDINGS, 18 MARCH, 1938, 10 a.m.

[The Commission met at the Federal District Court, Sydney.]

Present:—

C. E. MURRAY, Esq., D.J.J. (PRESIDENT).

D. A. W. ROBERTSON, Esq., COMMISSIONER. | D. HUGHES, Esq., COMMISSIONER.

Mr. Henry Smith, Barrister at Law, instructed by Mr. Wood, Crown Solicitor's Office, appeared on behalf of the Crown.

Mr. A. A. Johnston, Chief Inspector of Coal mines, advised Mr. Henry Smith.

Mr. A. A. Longley, Solicitor, appeared on behalf of—

- (a) The representatives of deceased miners, widows, etc., victims of the explosion;
- (b) the employees of the Mount Kembla Colliery (miners, wheelers, etc.), and
- (c) the Pictou Colliery Employers' Association (the Southern Mines Union).

Mr. G. G. Wade, Barrister at Law, instructed by Messrs. Curran and Barry, Solicitors, was present on behalf of the Mount Kembla Coal and Oil Company (Proprietors of the Mount Kembla Mine).

(Mr. J. Maclellan, Secretary to the Commission, was present to take recorded notes of the evidence and proceedings.)

Mr. J. C. H. MINGAYE, previously sworn, was recalled, and further examined, as under:—

Re-examination in-chief, by Mr. Henry Smith:—

28705. Q You gave the results of your analyses in general? A Yes.

28706. Q Now, I asked you in the course of your examination, what was the temperature which would be required to produce the largest amount of distillation that you found in some of the coal dust samples, and you gave me a Centigrade temperature, and I asked you what was the equivalent in Fahrenheit, will you tell me again, if you told me before, with regard to those twelve samples, what was the temperature temperatures required to produce the amount of distillation which had taken place? Have you done it with all of them? A No.

28707. Q Which did you do it with? A Even I gave that evidence I have made some experiments.

28708. Q Further experiments? A Yes.

28709. Q Will you tell me first of all the temperature Centigrade, and the temperature Fahrenheit, at which the volatile matter in these coal dust samples begins to distil off? A I found that about equivalent of from 300 degrees Fahrenheit, that is about 150 degrees Centigrade, to 350 degrees Fahrenheit, that is 175 degrees Centigrade, the volatile matter begins to distil off.

28710. Mr. Wade. Q Is not that by the continuous application of heat? I mean that the temperature continuously gradually runs up to these temperatures which you have given as the beginning of distillation? A Yes.

28711. Q It is not a flash of heat? A No.

28712. Q It is a gradual rising of temperature? A Yes.

28713. Mr. Henry Smith. Q It is between those two points that the distillation begins? A That is so.

28714. Q You could not be it exactly? A No, it is impossible to fix it exactly.

28715. Q How did you perform this experiment? A I took the fine coal dust from sample No. 10, and it was placed in a covered platinum crucible having a hole in the centre of the lid, and in which was suspended a Fahrenheit thermometer.

28716. Q Take them slowly—sample No. 11? A Experiment No. 11.

28717. Q Is that with sample No. 11? A It is with sample No. 12.

28718. Q It is a series of experiments made on sample No. 11? A Yes.

28719. Q Why did you take sample No. 12? A Because the volatile matter given off was only 10 per cent.

28720. Q It was the lowest, and left you a larger margin to play upon? A Yes.

28721. Q Experiment No. 13? A On heating a weighed quantity of the fine coal dust for five minutes at a low pressure and extending 300 degrees Fahrenheit, the coal dust lost 40 per cent. of the volatile matter.

28722. Q That is all of the volatile matter that was left is it after the original 50 was taken out? A Yes.

28723. Q Now, experiment No. 14? A On heating a weighed quantity of the coal dust, as in experiment No. 1, at a temperature of from 350 degrees Fahrenheit, equal to 175 degrees Centigrade, to 380 Fahrenheit or 193 degrees Centigrade, the fine coal dust parted with 3.5 per cent. of the volatile matter.

28724. Mr. Wade. Q That is a loss of 10 degrees? A Yes.

28725. Mr. Henry Smith. Q Now, that percentage which you put 3.50, was over and above the previous remaining percentage? A Yes.

28726. Q Now, experiment No. 15? A Using a higher temperature, approaching 500 degrees Fahrenheit, or 260 degrees Centigrade, to 530 degrees Fahrenheit or 255 degrees Centigrade, the fine coal dust lost 4.58 per cent. of the volatile constituents.

28727. Q That is a further fall of 4.58 per cent.? A Yes.

28728.

Notes—J. C. H. Noyes, 22 March, 1933.

- 24728 Q Now, you have added these together, have you not? A I made another experiment, No. 4.
 24729 Q Very well, go on. A At a heat over 500 degrees Fahrenheit, somewhere approaching, I should think, 550 degrees Fahrenheit—I am not absolutely certain, as it was impossible to measure accurately with the thermometer in use.—[Interrogated]
 24730 Q What is the Centigrade equivalent of that temperature? A I should say 305.6 degrees.
 24731 Q Repeat that? A Experiment No. 4, taking it at a heat above 500 degrees Fahrenheit, that is equivalent to 305.7 degrees Centigrade, up to about 550 degrees Fahrenheit, or 319.4 degrees Centigrade, there was a further loss of 4.26 per cent. of the volatile matter, which has to be added to the previous loss.
 24732 Q Now, you have reached there a maximum of 100 per cent of distillation? A As near as I can go.
 24733 Q Adding all those together, what is your total percentage of distillation? A 13.58.
 24734 Mr. Edwards. Q What was the temperature of the first experiment, when 0.46 was lost? A That came off at a temperature of 550 degrees Fahrenheit.
 24735 Mr. Evans Smith. Q I must, therefore, 550 degrees Fahrenheit to get 13.58 per cent of the volatile matter out of that coal dust? A Yes.
 24736 Q Well, now you take at a heat throwing light upon your other experiments? A Yes.
 24737 Q Now, in ascertaining the amount of volatile matter removed from Nos. 3 and 4, you get 13.54, did you not, and 12.96? A Yes.
 24738 Mr. Edwards. Are those other samples?
 24739 Mr. Evans Smith. No, they are two of the twelve samples. You see just now he has been dealing entirely with one sample.
 24740 Mr. Edwards. How could he get that? That is more than the coal contains.
 24741 Mr. Evans Smith. He first of all found what the coal dust contained, by taking these samples and weighing six other samples, and he gave us a standard I think of 23 per cent. of volatile matter in the coal, then he took these twelve samples and ascertained what volatile matter was left in them, and deducted that from the standard, and got the result showing the amount of the volatile matter that had been removed.
 24742 Mr. Evans. Q One sample averaged 13.58, another 13.54, and another 12.96? A Yes.
 24743 Q Those were three separate experiments? A Yes.
 24744 Mr. Evans Smith. Q Now, I think you wished to refer to some experiments made by the late Professor Edwin Newman? A Yes.
 24745 Mr. Evans. Where was he a Professor?
 24746 Mr. Edwards. He was Professor at the College of Physical Science at Northwestern State.
 24747 Mr. Evans Smith. Q Those experiments showed what? A The experiments showed that at a temperature of about 400 degrees Fahrenheit, or 315.6 degrees Centigrade, the coal begins to decompose; that temperature was required to produce appreciable decomposition of the coal.
 24748 Q What do you call "appreciable decomposition"? Is that what you call the distillation of the volatile matter? A Yes.
 24749 Q That is the same thing? A Yes, the same thing.
 24750 Q And that experiment shows that it requires that temperature to begin the distillation? A According to the Professor, yes.
 24751 Mr. Evans. Have you the papers here? It would be better to put them in.
 24752 Mr. Evans Smith. Q Have you the Professor's experiments here? A I have a note.—[Folman handed a notebook, "Chemical Analysis, vol. 2, Part, by Edith A. Evans," to Mr. Evans Smith.]
 24753 Q You have a note of some experiments by Mr. Thomas, which show a slightly different result? A Yes, Mr. Thomas' results show that the reaction commences slowly, and at a very much lower temperature than has been supposed.
 24754 Q He is not more definite than that? A No.
 24755 Q Then you have another authority, Mr. Glenn, who is he? A It was a discussion in a paper on an explosion of Gushkowitz dust.
 24756 Q Where was that discussion? A At the Virginia Meeting of the American Institute of Mining Engineers.
 24757 Q Is that quoted in this book [pamphlet "American Institute of Mining Engineers"]? A No.
 24758 Mr. Evans. Q What is Gushkowitz? A It is more like Hoffman, his name. It contains about 41.93 per cent. of volatile matter. It is a hydrocarbon compound.
 24759 Mr. Evans Smith. Q It is like the New Zealand coal? A It would more represent our shales, I think, considering the amount of volatile hydrocarbon present.
 24760 Mr. Edwards. Q Some of our shales have 50 per cent. A Up to 50 per cent. I have such there over 45 per cent.
 24761 Q What did Mr. Glenn say? A He says:—
 The fact we find that the greater part of the volatile matter was given off before a hot bed. This was checked about five years ago by analysis of all experiments, so that I am sure that volatile matter is discharged from the bed that they give up their gas readily and slowly. In some of my experiments the greater part of the volatile matter went off at a heat as low as it could be called black.
 24762 Mr. Evans. Q That would imply what?
 24763 Mr. Evans Smith. Q He means volatile becoming a red heat? A It would be just under a red heat.
 24764 Mr. Evans. Q A dull glow in the dark? A Yes.
 24765 Mr. Evans Smith. Q That is in the transactions of the American Institute of Mining Engineers? A There are separate papers.
 24766 Q Now, in your experiments which you have made since you gave evidence the other day, have you not ascertained the percentage of moisture that is in those twelve samples—this, True Han, is a very important point, which did not come out in Mr. Murphy's evidence before—you have ascertained the percentage of moisture in those twelve samples? A Yes.
 24767 Q Now, you ascertained the moisture in the average of Mount Kemble coal-dust that had been supplied to you, did you not? A Yes.
 24768 Q And what did you find that average percentage of moisture to be? A I have taken the three experiments the moisture is 1.3 per cent.
 24769 Q That is of Mount Kemble coal? A Mount Kemble coal.
 24770 Q What did you find the moisture in that coal to be? A 1.3 per cent.

24771. Q. Now, what did you find with regard to these twelve samples—did you find that the moisture was less or more than the average?

24772. Mr. Scherwin. Q. I understood you to say that that was the average of the twelve samples? A. No, that was in the Mount Kemble coal, 1.2 per cent.

24773. Mr. Bruce Smith. Q. You might just mention about these samples, because it may be a disturbing factor in your experiments—when did you get the sample of Mount Kemble coal, apart from the twelve samples which had been in the explosion? A. This sample was handed to me by Mr. Auguster Watson, on Thursday, the 15th of August.

24774. Q. And where have you had them since then laid? A. They have, since the micrograph and chemical examination, been in my safe.

24775. Mr. Bush. Q. When was the test made for moisture? A. About two days afterwards, so that they were stored on the same day. They were probably going through. They would be two to three days going through.

24776. Q. You tested the moisture of the sample apart from the twelve samples, but the sample of the same you tested two days after you received it? A. Not the sample of the same—I am taking for the start the average moisture in the Mount Kemble coal at 1.2 per cent.

24777. Q. How do you get that? A. From the analysis of the Mount Kemble coal.

24778. Q. Made when? A. I cannot say when it was made, but it is in Mr. Pittman's book on page 323.

24779. Q. Oh, I see, you took that from Mr. Pittman's book, Coal mining? A. Yes, so much that I had done for him.

24780. Mr. Howe. Q. Did you say that those errors appearing in Mr. Pittman's book were from your own analysis? A. They are my own analysis, or made by my assistant, under my supervision.

24781. Mr. Scherwin. Q. I understood now that there was not a sample taken for the moisture?

24782. Mr. Bruce Smith. A. No.

24783. Q. Is that contained in Mr. Pittman's book—does that refer to Mount Kemble coal, or to all the coals in the Southern District? A. Mount Kemble is not included in Mr. Pittman's book, but I made experiments, which are given on page 323, on coals that were sent in connection with making experiments that were made on the Mount Kemble coal, but not making.

24784. Q. So, while it is in Mr. Pittman's book, it is not one of those included in his average. You might say how that percentage, which you ascertained on that occasion, compares with the average percentage published in another part of the book? A. It is higher than the average of the coals for the Southern District. The average will work out to .97 per cent.

24785. Q. Now, I ask you your special experiment compared with the general experiment?

24786. Mr. Scherwin. I really do not think that is of the slightest value.

24787. Mr. Bruce Smith. Q. Yes, it is very important. I only want that to be clear.

24788. Q. Is there any connection at all between the percentage which you brought out for all the Southern coals and the percentage which you brought out in regard to Mount Kemble coal? A. The Mount Kemble mine is 1.2 per cent; and, taking the average of twenty out of the Southern coals, the moisture is .97.

24789. Q. There is a difference between .97 and 1.2, a difference of .23 per cent more, you make the moisture—no .23 to .97? A. Yes.

24790. Mr. Bruce Smith. Q. Now, you ascertained what percentage of moisture there was in these twelve samples? A. Yes. In No. 1 there was .43 per cent.—[interrupted]

24791. Mr. Bush. Q. He has given that before.

24792. Mr. Bruce Smith. Q. Very well.

24793. Q. Is there a gain or a loss of water in the twelve samples? A. There is a gain in every case.

24794. Mr. Bruce Smith. Q. That is the point, Your Honor.

24795. Mr. Scherwin. Q. What is the average percentage?

24796. Mr. Bruce Smith. Q. 1.2.

24797. Mr. Scherwin. Q. What is the average of the moisture in the samples?

24798. Witness. Q.

24799. Mr. Bruce Smith. Q. Mr. Shaffer will state that these twelve samples contained an increased moisture, and he will say, as a scientific man, what that implies.

24800. Q. What do you say that that evidence is? A. The evidence is positive, taken with the other results, because in an explosion of coal, one of the products formed is steam, which very likely would cause moisture in the fire dust.

24801. Q. And you say that there is an increase in moisture in the whole of the twelve samples? A. Yes.

24802. Q. Indicating to you that there has been an explosion, a generation of steam, and the addition of moisture is consequent? A. Well, I say that it looks very positive, getting that increase of moisture, taken in connection with the other results of the analysis.

24803. Q. It confirms the other result? A. Yes.

24804. Q. What does it confirm? A. It confirms what I found in the other samples that had been asked, and that in one of the samples that contained pieces of dust that had been slightly charred by heat, and had been in flame.

24805. Q. You think that, by reason of this increase in moisture in the dust as compared with the coal, you can draw the inference that an explosion occurred? A. Yes, taking the other evidence into consideration.

24806. Q. But you would expect that the dust would contain more moisture than the coal? It would absorb the moisture, particularly in the return airway—it would absorb the moisture in the air?

24807. Mr. Bruce Smith. Q. But what he would say is this, that, up to a certain temperature, the tendency would be to take all the moisture out of the coal, if there was no flame, but, beyond that, there would be steam, which would add to the moisture again.

24808. Mr. Scherwin. Q. Quite so, but this was taken some days afterwards, and the dust he had had time to absorb moisture. If you will lift any of that dust, you will find it is quite damp.

24809. Mr. Bruce Smith. Q. That is an argument, but here is no experiment.

24810. Q. You found an increase of moisture in the whole of the samples? A. Yes.

24811. Q. And you found a greater increase of moisture in which samples? A. No. 5 and No. 8.

24812. Q. And No. 7 comes next to that? A. Yes.

24813. Q. Nos. 5, 7, and 8? A. Yes.

Witness—J. C. B. Rogers, 11 March, 1913.

20014. Q So that you found the greatest increase in moisture in the same samples in which your other experiments proved to you that they had been subjected to the greatest heat? A Yes, that is so.

20015. A. Yes. South. Q Now 5, 6, 7 and 8.

20016. A. Yes. Q Did you say Nos. 5, 6, 7, and 8.

20017. A. Yes. Q To show that heat you would require to take dust from parts of the mine that were not affected by the explosion.

20018. A. Yes. South. Q Well, it is the result that you would expect, from scientific authority, where there has been heat and an explosion? A Well, you would certainly expect that steam would be given off after an explosion.

20019. Q Would you show me that authority? A It is a well known authority.

20020. A. Yes. South. Q It is a well known.

20021. A. Yes. South. Q It is in Professor Callaway's Report on the Universal Colliery Explosion, I think? A Yes.

20022. A. Yes. South. Q I will not dispute that.

20023. A. Yes. South. Q Now, supposing you are right in your standard proceedings, and that you are right in the conclusion that there is an increase of moisture here, is that consistent with the wind theory that has been advanced in this case as producing heat up to 241 degrees? A Well, if a current was passed away east, the first thing that would be given off would be the moisture, under a temperature of 100 degrees Fahrenheit.

20024. Q And when you find the increase, that shows itself upon the same heat by wind theory, and suggests to you an explosion, is not that an—data at your own way? A The microscope and chemical examination of the coal dust certainly indicates that there has been a flame. If I can answer it in that way.

20025. A. Yes. South. Q Does not this show moisture usually? A That is so, yes.

20026. Q Well, does any of that moisture was taken up after the explosion? A Well, the excess of moisture here is rather high.

20027. Q Is it not so, then, if this dust was asked or partially asked, it would have a tendency to absorb moisture readily? A To absorb a small amount. I would not expect all this here, without it had been through rain or something of that sort. You see it is very high. In one case it is nearly 80 per cent. in water.

20028. Q But still you do not know that that coal dust had not absorbed moisture from the current of the explosion until the sample was collected? A I cannot say that at all. I give three figures on my experiments.

20029. Q The samples would require to have been taken immediately after the explosion? A It certainly would have been better.

20030. A. Yes. South. Q You gave the date of these samples in your first evidence? A Yes.

20031. A. Yes. South. Q How many days was it that the samples reached you after the disaster? A I received the samples on the 25th of August.

20032. A. Yes. South. Q Now, in the testimony that you referred to, in the Universal Colliery Explosion Report, Professor Callaway has delivered exactly the same process, has he not, in his taken and from the heat, dust from the floor and the results of what dust obtained from the furnace, and he has made a deduction from the fact that he finds a larger percentage of moisture in the coal after the explosion than in that taken from the floor of the coal? A He says that there is more, yes.

20033. A. Yes. South. Q That, Your Honor, is the page in which he has compared the figures.

20034. A. Yes. South. Q He has shown these shown to the Commissioner page 17 of the Report on the Universal Colliery Explosion by Professor Callaway.

20035. Q So that is a theory of your own? A No.

20036. Q You are not claiming any originality for it? A No.

20037. A. Yes. South. Q I make these translations of the American Institute of Mining Engineers.

20038. A report of a discussion at the Bridgeport meeting of the American Institute of Mining Engineers in October, 1904, on "Coal dust as an Explosive Agent," with reference to a paper by Mr. Orin on "An Explosion of Grains of Dust," was put in and marked Exhibit No. 50. For copy see Appendix.

20039. A report of a further discussion of the American Institute of Mining Engineers on the same subject at the same meeting was put in and marked Exhibit No. 51.

20040. A paper by Mr. Joseph M. Baker, F.R.S., on "Coal-dust as an Explosive Agent," printed in the "Transactions of the American Institute of Mining Engineers," Pittsburgh meeting, February, 1904, was put in and marked Exhibit No. 52.

Continued by Mr. Wade—

20041. Q Were these samples of dust, as you put them, in very fine particles? A Yes.

20042. Q You did not grind them up yourself? A They were not-ground at all; they were thoroughly mixed.

20043. Q Were they very small, minute? A They were minute particles, but there were also some particles where they had adhered together.

20044. Q Where the various parts of the dust have united? A Yes.

20045. Q By what you call the rubbing process? A Yes.

20046. Q They were what you call fine dust? A Yes.

20047. Q The dust is almost impalpable? A It is very fine.

20048. Q It is the very finest of fine dust? A Yes.

20049. Q Do you say now that there had been an explosion where that dust had been? A I say that, taking my mind there, from the microscopic examination and from the chemical examination, they indicate that there had been an explosion.

20050. Q Is that the conclusion that you want to, that there had been a gas explosion, or a coal dust explosion? You have shown this explosion upon as far as mine—Mr. Orin, Mr. Baker has, but I want to know what your conclusion is, or what his conclusion is? A My opinion is that there was an explosion of low-degree in the mine, which was fired by a naked light, and also that the coal dust, not large extent, accelerated the force of the explosion.

20051. Q Give that to us, I suppose your idea is that this small coal dust was in the air when it was fired upon by the heat or flame or explosion in the coal? A Well, it is possible some of it may have been, but it would be caused from the ignition by the explosion, in fine dust, and from the flame all round.

20052.

25853. Q In a coal-dust explosion, is not there a kind of advance blast of the dust itself? A I cannot say that.
25854. Q Do you know that the flame plays upon the dust actually in sequence in the air? A Yes.
25855. Q What is the temperature developed by an explosion of fire-damp? Do not look at your notes. Do you recollect, of your own knowledge, what the temperature of a fire-damp explosion is? A I think it is a temperature of about 550 degrees centigrade, if I remember rightly.
25856. Q Do you think that is the highest? A That is from memory.
25857. Q Now, look at your notes? A No, I have made a mistake, it is 750 degrees.
25858. Q That is pretty near 1,000 degrees Fahrenheit? A 1,455 degrees.
25859. Q Do you say that is the ordinary temperature of a fire-damp explosion? A That is the temperature at the ignition of the gas, as given by my authority.
25860. Mr. Robinson. What is that?
25861. Mr. Fink. It says the temperature of a fire-damp explosion is not more than 1,455 degrees Fahrenheit.
25862. (Witness.) That is when the gas will ignite.
25863. Mr. Fink. Q Is the temperature higher in the case of an actual explosion? A It is possible.
25864. Q I do not want to know whether it is possible, I want to know what you, as an expert, say? A I should expect the temperature to go up to 750 or 800 degrees centigrade.
25865. Q Not more than that? A No.
25866. Q Do you know what the highest explosive mixture of fire-damp is with air, what proportion is most explosive? A I have all my notes here.
25867. Q Never mind about your notes? A I prefer my notes.
25868. Q I want to know if you can say from your own recollection? A About 8 or 7 per cent.
25869. Q That is the most explosive proportion? A Yes.
25870. Mr. Robinson. (Q) Is that correct? A I would never refer to my notes, if you will allow me.
25871. Mr. Fink. I would prefer you to tell me from memory.
25872. (Witness.) I cannot remember all these things.
25873. Mr. Fink. (Q) How can a man be expected to remember all these things?
25874. Mr. Fink. Q Then, if you cannot remember, refer to your notes? A When the dust forms as much as one part out of thirteen of the air, the mixture becomes explosive, so that, if ignited by an exposed flame, the mixture is converted into a mass of flame. In that state of the mixture, however, the force of the explosion is comparatively feeble. When there is only one part of fire-damp to nine parts of air the explosion is greatest.
25875. Q What is the temperature developed with a mixture in the proportion of one of fire-damp to ten of air? A I could not say.
25876. Q Do you know it goes to 1,000 degrees Fahrenheit and more? Did you ever hear it was 1,000 degrees centigrade? (Witness did not answer.)
25877. Q Supposing there is a temperature of 1,000 degrees Fahrenheit setting an equal part of coal dust in the air, even rapidly, would not you expect them to be entirely consumed, and to get beyond the cooling stage altogether? A Not if there was not a sufficient supply of oxygen in the air.
25878. Q Not even the small particles? A A certain proportion of it may be, but you will have to give your experiments. (The end of the session.)
25879. Q Yes, in your analyses? A Yes, that is the case.
25880. Q It has nothing to do with any ash that came in the samples in the form of ash? A No, it is the percentage of ash in the samples.
25881. Mr. Robinson. Q But the dust may have contained foreign water-soluble from what was chemically combined with the dust? A The ash consisted of fine stone dust largely.
25882. Q Not in chemical combination with the dust? A No, not in chemical combination, separately altogether.
25883. Mr. Fink. Q Now, just tell us how you arrived at this result in your analyses, what is the first thing you did with your samples of coal-dust? A The first thing I did was to determine the percentage of moisture.
25884. Q How did you do that? A By taking a given weight of the coal-dust and volatizing it in a bath of 100 degrees centigrade for one hour; the difference between the weight of the dust and its weight when dry at 100 degrees Centigrade would give the amount of moisture.
25885. Q Did you use that dust again in any further experiments? A No.
25886. Q You put it in one side? A Yes.
25887. Q Then, how did you get your volatile matter? A By taking a given weight of the fine coal-dust and spraying it in a closed platinum crucible over a three-barrier and then using the blast, until all volatile matter was gone off. That is weighed and the difference between the original weight, and its weight when taken from the crucible, gives the loss, which equals the volatile matter plus moisture. Taking the moisture off it will give you the volatile matter.
25888. Q What did you get for the volatile matter for No. 1? A 1.91.
25889. Q What does that mean? A That is 1.91 per cent.
25890. Q What? 1.9, or 1.91 percent? A That is the moisture in the coal dust, contained in the coal-dust.
25891. Q I am not talking of moisture; I am talking of the volatile matter? A I got 15.34 per cent. of volatile matter.
25892. Q And what proportion of fixed carbon did you get in that? A I have not run it out here, but the value equals the fixed carbon and the ash.
25893. Q Do you mean that the dust which you subjected to heat in the crucible came from, as a result, five and three, a loss of 15.34 per cent., which you attributed to the loss of volatile matter? A Yes, taking off the moisture first.
25894. Q And what is the temperature at which you did that? A That temperature was pretty high; it was over a three-barrier, using a blast.
25895. Q That does not help me much, I am afraid, I am a layman, can you give me any idea? A It is a temperature of over 1,000 degrees Fahrenheit, I should say.
25896. Q For how long did you try it? A For about five minutes.

Winn—2, C. E. Shapiro, 10 March, 1933

14887. Q. What did you get left—ash? A. No, the water is left, and that equals the fixed carbon and the ash, which is 75.5

14888. Q. The coke that was left in the crucible after this process consisted of the fixed carbon and the ash, and you afterwards oxidized it into water and ash? A. By leaving off the fixed carbon the ash is left. By leaving that, allowing the access of air to it, the carbon is burned off, leaving the ash.

14889. Q. Now, I want to understand about this—how plus you speak of. You get 1.5 in the percentage of moisture in the ash that had come from Kantha for the purpose of working, is that so? A. That is so.

14890. Q. Would there be any difference between that and the ash that came from the first? A. It is possible. There is always a slight difference in the results taken, unless a thorough average is taken from the face right through. There must be slight difference, but, if you take the mean of the twenty-one samples, that will give it.

14891. Q. That is for all the ash except Shash Kantha? A. Except Shash Kantha.

14892. Q. Did you make an analysis of any ash from Shash Kantha itself? A. Yes.

14893. Mr. Anderson. Q. I cannot see what is the value of comparing an average of twenty-one samples made with Kantha, some are very high, and some very low, and I cannot see what is the object of it? A. It is this: I had not a sample of an average of Kantha sent to me with these data, and I want take an average.

14894. Mr. Fink. Q. Did you had a sample of Kantha? A. No.

14895. Mr. Bruce Smith. Q. Did you had had it before? A. Oh. I had had it before; in fact, I have had some that have not been published in Mr. Pittman's book.

14896. Mr. Fink. Q. Now, is this the fact—that, if you apply a temperature of, say, 300 degrees Fahrenheit to coal dust, the ash is more getting off at variable matter at once? A. At 300 degrees it appears to commence to break off.

14897. Q. At once; you have not got to wait five minutes? A. I took the experiment on five minutes.

14898. Q. The which, then, if you apply a temperature of 300 degrees Fahrenheit to coal dust, the reaction takes place at once to some extent? A. With this condition it did.

14899. Mr. Anderson. Q. Would it take place in half a second? A. It is possible, I would not like to say—I have not tried it, but it is very possible with a flash.

14900. Q. It would take place with a flash? A. Possibly, I would not like to say.

14901. The Reader. Q. Supposing the temperature of what is called the flash is, itself, only 300 degrees Fahrenheit, and that the flash is enough, for a moment of time, to raise the dust to 300 degrees Fahrenheit, but that the flash itself does not exceed 300 degrees Fahrenheit—that is what Mr. Anderson really meant, I think—would it be possible for that to cause even an incipient decomposition? A. I should expect so, to a slight extent, but very small.

14902. Mr. Fink. Q. And would not the same effect—up to that incipient decomposition—lead to produce further heat and further oxidation? A. Yes, it is possible.

14903. Q. Does you get a certain temperature, and you supply oxygen to it, it will go on, nothing will it not? A. Yes.

14904. Q. And it is perfectly feasible mechanically, is it not, that you might, in that way, get an actual red heat of coal dust? A. I do not know that I can say that at all.

14905. Q. Do you mean to say that, if you start with a temperature of 300 degrees, which will produce oxidation to some extent of the coal dust, and oxygen has access to that, you would not get a further increase of temperature? A. I do not think it would be much.

14906. Q. Would there be more? A. There might be some; I would not say there would be much though. It is impossible, without trying these experiments. Those men who have great ignorance as to how much a vast number of experiments to settle the matter. It is a very difficult question to answer.

14907. Q. Do you know what temperature coal dust will ignite at? A. I should say between 700 and 800 degrees Fahrenheit.

14908. Mr. Anderson. Q. Did you get ignition in any of these experiments? You get oxidation; you did not get ignition? A. No. Of course, these experiments could only be carried out in a closed vessel. It is very different where the air is passing over it.

14909. Q. Do you think you would have got ignition with that temperature with access to air? A. I do not think so.

14910. Mr. Fink. Q. However, your dust, I suppose, was lying in this crucible to some depth, was it not? A. Yes.

14911. Q. How deep? A. About an inch and a half, with the bulb of the thermometer in the center of it.

14912. Q. An inch and a half in depth? A. Yes.

14913. Q. And what was the diameter? A. About an inch.

14914. Q. To the outside surface? A. Yes.

14915. Q. The action of heat so that would be much slower than if the particles were in the air? A. I should think so. I think if there were a flash you would get more than the reaction over the surface.

14916. Q. You will admit, then, that your test as to the different temperatures which gave off different amounts of volatile matter are not exactly analogous to what would take place in a mine in case of the application of great heat? A. No, certainly I will admit that, but I think that, in passing over a large quantity of fine coal dust, I should expect more taken out in proportion.

14917. Q. How do you mean more taken out? A. More of the gases liberated. It would extract more of the gas.

14918. Q. That is at a great temperature? A. Or at the low temperature. It only takes 40 out of 200 degrees Fahrenheit, that is something large, if it is passing over a large mass of the coal dust.

14919. Q. Then do you mean to say that, with a temperature of say 300 degrees passing over coal dust suspended in the air, even instantaneously, you would quite expect to find a ton of say 40 of volatile matter? A. I should say so, perhaps more. Of course, it is a new line that there may have been a series of explosions that gas, once ignited, would ignite perhaps in different parts of the mine, and you may have a series of explosions, which would cause heat.

14920. Q. Now, can you tell me, besides CO and CO₂, what gases are given off, say, in an explosion either of fine dust or coal dust? A. In an explosion of coal dust?

14921. Q. Yes, take an explosion of coal dust? A. In an explosion of coal dust you would have carbonic acid, if you have incomplete combustion, you would have carbon monoxide given off, and also you would have some other products, including free chlorine and steam.

14922.

28922 Q Would you get the ordinary and gas given off? A It would be given off but decomposed by the explosion.

28923 Q Anything like H₂? A No.

28924 Q What is the chemical composition of ordinary and gas? A It consists largely of marsh gas or the cheap, and hydrogen.

28925 Q What are the chief constituents? A [Continuing previous answer] With nitrogen and oxygen and carbon dioxide, and carbon monoxide, in.

The percentage Composition of Coal gas.

Carbon dioxide	—	—	—	—	—	3.01
Nitrogen	—	—	—	—	—	3.12
Oxygen	—	—	—	—	—	.85
Ethylene	—	—	—	—	—	2.55
Propylene	—	—	—	—	—	1.01
Benzene vapour	—	—	—	—	—	1.22
Hydrogen	—	—	—	—	—	48.20
Marsh gas	—	—	—	—	—	24.22
Carbon monoxide	—	—	—	—	—	9.88

100.00

28926 Q What are the chief constituents of marsh gas? A It largely consists of a series known as CH₄, in the chemical. Marsh gas, when burned, also contains nitrogen, carbon, dioxide and oxygen.

28927 Q Do you get any CH₄ in coal gas? A Yes, by destructive distillation.

28928 Q And would that be distilled and separated in the course of an explosion? A In the course of an explosion, it would be decomposed.

28929 Q What do you mean by that? A It would be decomposed to an extent, and would form carbonic acid, and free nitrogen, and carbon monoxide, if you had complete combustion; and also you would be able to see them.

28930 Q Then there would be no coal gas at all evolved which could be found? A Not after an explosion.

28931 Q There is the case of complete combustion or partial combustion that you would get steam? A Well, after any explosion there is a certain amount of steam.

28932 Q Whether the combustion is complete or partial, do you mean? A Well, within certain explosion you may have a fairly complete combustion.

28933 Q Then you limit it to the case of a complete combustion? A Not necessarily.

28934 Q Now, with regard to those samples you examined, do I understand that only part of the content was tested? A The edges of the five dust show that it had been taken on the surface to samples Nos. 1 to 4 and 7 to 11, but in samples Nos. 5 and 6 the sides was showing very plainly.

28935 Q Then you put the test in Nos. 1 to 4 and 7 to 11 so, as far as you can see, being certainly less than 1,000 degrees Fahrenheit? A No, I do not say that.

28936 Q Did not you say the other day that it would be less than 1,100 degrees Fahrenheit? A Yes, less than 1,100 degrees Fahrenheit.

28937 Q Is not less so? A As regards Nos. 1 to 6 and 7 to 11, but not as regards Nos. 5 and 6.

28938 Q Can you give any definite opinion as to the test that was applied to Nos. 5 and 6, or were those results obtained from the test being applied some continuously? A I consider that it is most probable that Nos. 5 and 6 have been up to a temperature probably of 900 or 850 degrees Centigrade.

28939 Mr. Bruce Smith: Q What is the equivalent in Fahrenheit? A 850 degrees Centigrade is 1,550 degrees Fahrenheit.

28940 Mr. Fish: Q Now, in what form was the solid residue in Nos. 5 and 6—was it in large particles? A No, it was not in very large particles, but it was held together by the melting of the bitumen in the matter; and, if you will allow me to read my original paper, No. 5 consisted largely of solid residues, the hard, coarse, porous, structure of the side being readily visible, also patches, or globules, of free coke, sometimes remaining small then. The chemical examination proves that the dust has parted with a large proportion of its volatile matter.

28941 Q Now, these globules of free coke were really partially melted bituminous matter, is No. 5? A Yes, in one case a small bit of the bituminous matter had melted, and you could see that the inside had burnt and that there had been an escape of gas.

28942 Q So that No. 5 had a lower temperature than No. 6. Is that so, according to appearance? A It is possible. It is very hard to say what temperatures they had been subjected to.

28943 Q Right; I ask where Nos. 5 and 6 came from. I have a document was put in, but I have not seen it?

28944 Mr. Atkinson: I asked you to go a place the place where those samples of dust had been obtained from, viz., No. 5 from a point 344 yards north of the first Right on No. 1 Right rope road, and No. 6 from 341 yards north of the first Right on same road.

28945 Mr. Fish: Q Can you tell me then—supposing there had been a long tongue of gas flame, not actually explosive, but that the gas had lit on a long tongue of flame covering, say, the areas where samples Nos. 10 and 11 were obtained from, would you expect to find indications of sooting on those samples? A Yes, to a small extent, if the gas had played over it, I should.

28946 Q What would you expect, if there was dust in suspension in the passage where the gas flame lit, would you expect the flame to communicate itself to the dust too? A Yes, certainly, if there were dust in suspension I would expect a big explosion.

28947 Q Then, if the gas itself was not in an explosive combination with air, or rather a highly explosive combination—[interrupted]? A It would want to be in the proportion to explode.

28948 Q Supposing you had 5 or 6 per cent. of gas in the air, would not that ignite? A Yes.

28949 Q Really? A Yes.

28950 Q Supposing you had that, a large body of gas in that proportion, and if lit, and the flame travelled and passed through dust in suspension, what would you expect under these conditions? A I would expect a big explosion. The explosive power would be very high, I should say.

28951 Q When you light gas, is there an explosion through the heat developed? A The gas burns through an explosion?

28952.

Witness—J. C. H. Manges, 12 March, 1903.

20583 Q When you start lights fire-damp—supposing fire-damp is travelling along the road, say, at a passage in a mine, and you apply a light to the miner and as it comes towards you—do you get an increase of energy and heat, and an expansion from the ignition? A Yes, you would do so, and also drive off the gas, and tend to form a vacuum.

20584 Q Would not you expect, from that ignition, that the force would extend in every direction? A Well, that is a hard question for me to answer. It is more a question for a mining engineer.

20585 Mr. Bruce Smith. Q What was the Fahrenheit temperature that would be primary on the case of Nos. 2 and 3, to deposit them of their volatile matter? A About 1475 degrees Fahrenheit.

Examination by Mr. Robertson:—

20586 Q Would not the temperature at which the volatile constituents of coal are distilled depend to some extent on the relative percentages? For instance, would not you expect that the volatile constituents of a shale, or a Carboniferous or an Alluvial would part more readily than from, say, an anthracite? A Coal higher in bituminous matter, I should think, would part more readily.

20587 Q Therefore, the temperature at which distillation would commence would depend really upon the character of the coal, that is to say, upon the relative percentages of volatile matter in it? A To a large extent, yes.

20588 Q I think you said that the dust would commence to distil at about 350 degrees Fahrenheit? A I am taking it from my experiments, and I found that it started from 350 degrees Fahrenheit.

20589 Q Supposing a wind blast had come out from a certain part of the mine, say, at 350 degrees Fahrenheit, would that distil the coal dust at that temperature, that is to say, the wind blast was at 350 degrees Fahrenheit, would that distil the coal dust? Q It possibly might take a small percentage of the gas off, but it would take the moisture first. You are the moisture is given off at 150 degrees Centigrade.

20590 Q It would only come for half a second. Do you think that half a second, or a second, or two seconds, would be sufficient in drying off the moisture? Yes sir, in your experiments, I understand, you had had drive off the moisture? A My experiments were made in the usual manner, the moisture was taken first, and a separate lot was taken, to see as to the volatile matter and the color.

20591 Q But when you expressed the opinion a short time ago that a period of time of half a second, that is to say, properly a flash, would be sufficient to commence distillation of the coal, did you bear in mind the moisture? Left and free from moisture, or with moisture? A Well, I should take it as coal free from moisture.

20592 Q Well, if a wind blast came out in half a second, do you think that half a second, or more or less, would be sufficient in drying off the moisture from the coal dust? A I should hardly think, in fact, that a wind blast would take off any small quantity of the volatile matter certainly with a wind blast I would not expect to find the dust in the cooled state I did find from the uncooled concentration of it.

20593 Q Would you expect a wind blast at a temperature of 151 degrees to ignite the coal dust? Q No, certainly not.

20594 Q Would it make any difference if that wind blast was under pressure? A I should not expect anything, but it is a very difficult matter to say so rightly—the whole thing is a new theory altogether.

20595 Q What is a new theory? A The wind blast.

20596 Q Do you think it is probable that the wind blast at that temperature would bring about an explosion? A I do, very probable.

20597 Mr. Bruce. Q And you are that, by the action of turning the water in connection with coal dust in a wind would be very high-pressure steam, there would be an enormous deprivation of heat in the air at once, a reduction of temperature? A Yes.

20598 Q I suppose, for every given weight of water is turned into steam, there would be something like a drop of one degree to somewhere about 1,000 bulbs of that water, or, if you like, an equivalent of 10 degrees to every 100 bulbs of that water, so turned into steam? A Yes.

20599 Q And that would be a very important factor in preventing any further chemical action which would require such a temperature as 351 degrees to start it? A Yes. I cannot receive that, by that theory of the wind blast, you could get sufficient to fire it, and that the fire dust would be left in the cooled state that it is. Not only that, but as Mr. Bruce of some of the clays of wood showed that there had been flame there—they were charred just as the markers, showing that there had been flame passing over them. I believe, with their first charred in the back, some of the props, before they are brought into the mine, are subjected to heat in the back? A Yes.

20600 Q And it is just possible that what you have just there may have been charred before it entered the mine? A Of course that is quite possible. I can only go by what I find.

20601 Mr. Robertson. Q Yes, I do not question what you say.

20602 Mr. Bruce Smith. Q Mr. Manges brought his microscope here, to take the Commission over to see these particles of coal dust through it.

20603 Mr. Bruce. Q The Commission are prepared to trust to Mr. Manges for that. Mr. Manges has been in the habit of making these examinations for years.

20604 Witness. Yes, Your Honor.

[Examination concluded.]

Mr. J. D. GOODWIN was sworn, and examined as under:—

[This witness was called by the Commission, as he had written offering some suggestions. As a matter of convenience, and at the request of the Commission, Mr. Bruce-Smith withdrew for consultation in chief.]

Examination is chief by Mr. Bruce Smith:—

20605 Q What is your name? A John Dallman Goodwin.

20606 Q And what are you? A At the present time I occupy the position of Municipal Engineer for the Borough of Ashfield. There is one matter, Your Honor, that I would like to lay before the Commission before I give evidence. I am here today to answer any questions bearing on the subject-matter mentioned

in my letter addressed to the President of this Commission. It is my desire to be addressed as John Gardner, Municipal Engineer of the Borough of Adelaide. Your Honor, I will place in your hands correspondence that will identify my position as a mining surveyor. It is my wish that you will treat the correspondence as confidential, for the following reasons:—To be made public might be detrimental to the interests of those parties I represent who are interested in mining properties in New South Wales, so which I have to report from time to time, and which might have the effect of debarring me from getting information that would be to their advantage. On those conditions I am prepared to be questioned.

19090. *Mr. Justice Smith* (to Mr. Justice Smith). You have nothing of the correspondence, do you?

19091. *Mr. Justice Smith* (to Mr. Justice Smith). No.

19092. *Witness* (to Mr. Justice Smith). I only identify my position and qualifications as a mining engineer.

19093. *Mr. Justice Smith* (to Mr. Justice Smith). We have your first word. We have no doubt of that, on your own word.

19094. *Mr. Justice Smith* (to Mr. Justice Smith). Q. Will you tell me what has been your experience in connection with coal mining, either in Britain or in Australia? A. I worked over twenty years in mining till I came to the witness.

19095. Q. In what country? A. In South Yorkshire.

19096. Q. And in more than one mine? A. Yes, I have been in many mines there.

19097. Q. You might just name the principal ones? A. I made an inspection of the Mooreroth Mine, also Barnaby. I have also inspected the Heyland-Sullivan Mine. I have also been in the Shrimpsing, Bransford Moor.

19098. Q. Have you worked in them, or have you occupied any official position? A. I worked in them and moved myself from having coal to the position of mining surveyor.

19099. Q. Then you have practical knowledge? A. Yes.

19100. Q. And you have got coal? A. Yes.

19101. Q. And you have been a surveyor in one or other of them and more? A. I have been an Inspector.

19102. Q. Have you ever been a manager or under manager of any mine? A. No, I have not.

19103. Q. Then I may take it that you have been a mine and a surveyor? A. Yes.

19104. Q. And when you are now reported on these mines, do you mean you reported when you occupied the position of a surveyor? A. Yes, as an Inspector.

19105. Q. You have never been asked by the Home Office to report specially on any of these mines? A. I have been asked by the owners.

19106. Q. Will you tell me which one? A. I reported on the Heyland-Sullivan Mine, when it was alleged that they were not safe to work on.

19107. Q. For whom did you report? A. I reported on behalf of the owners and of the men, at that time. I am proud of it. I was appointed by both.

19108. Q. You were surveyor at that time at the mine? A. I was appointed by the owners to inspect on that occasion. I was brought from Warrumbidgee, Wilkeson Collieries, to report on the Heyland-Sullivan Mine.

19109. Q. And you were employed at that time by the owners? A. I was appointed to inspect it by them on the question of safety.

19110. Q. Now, have you had any experience in Australia in mining? A. Yes.

19111. Q. Which mines have you been in? A. I inspected the Kaitangata in New Zealand, after the explosion.

19112. Q. For whom did you report? A. For Robert Fisher, Esq.

19113. Q. The owner? A. I think he was an agent.

19114. Q. Will you tell me any other mine in Australia that you have been connected with? A. Yes, I have been, but I do not wish to go into those private matters.

19115. Q. You have not been employed in any Australian mine? A. No, I have not.

19116. Q. And how long is it since you had any practical connection with any coal mine? A. The last inspection that I made of a coal mine was in 1904.

19117. Q. You have not forgotten your working, I suppose, in connection with coal mining? A. I do not think so.

19118. Q. Have you followed the reference in the investigation of the Mount Koola explosion? A. Yes, I have read part of what has been published in the daily press.

19119. Q. You do not know the Mount Koola mine? A. I know where it is situated.

19120. Q. But you have not been in it? A. No, I have not.

19121. Q. Now, from what you have read of the investigation, is there any information which you wish to place before the Commission which will throw any light upon the inquiry? A. Well, I formed my private opinion upon that matter.

19122. Q. Take the question of gas: what has been your experience of gas, on hearing upon this matter? A. I have been present in three explosions of the kind.

19123. Q. What mines were they? A. Two explosions in Bransford Moor, on the Shrimpsing Mine.

19124. Q. Were there any and many near that mine? A. There were not.

19125. Q. And what was the effect of the explosion? A. It was only very local, keeping in one district; and there was not much damage done. A few men were killed seriously, in one case three, and in another case four.

19126. *Mr. Justice Smith* (to Mr. Justice Smith). Will you say where they were? A. At Shrimpsing, near Barnaby, Yorkshire.

19127. Q. In the north-western counties? A. Yes.

19128. Q. In the coal measures? A. No coal measures within hundreds of feet.

19129. *Mr. Justice Smith* (to Mr. Justice Smith). Q. Well, you have had experience of fire-damp in coal mines? A. I have.

19130. Q. Was there any difference in the nature of the explosion or the effect of it? A. No.

19131. Q. No difference? A. No difference.

19132. Q. You recognized just the same agent in both cases? A. Oh, yes, but in either greater or less degree.

19133. Q. You know a fact that there was fire-damp present in this instance more? A. Fire-damp had been found once, but many years prior to the explosion.

19134. Q. And you were working, I presume, with open lights? A. They were working with open lights.

19135. Q. You say the men were found in the instant? A. Yes.

19136. Q. What were the indications of burning there? A. Smoking of the skin, which turned very brown, and, in some cases, you would find that a great swelling of the skin, which is like a blister.

19137. Q. Were you in the vicinity when the explosion took place? A. I was.

19138. Q. Did you see the flame from it? A. Yes, and noticed three men myself.

19139.

Witness of E. Condon, 18 March, 1933.

- 23021 Q And that had the effect of raising the shoe from the floor and turning it brown? A Yes, like blinding.
- 23022 Q And what effect had it on the floor? A Singing.
- 23023 Q Now, that is an account of both of the explosions you speak of? A I saw an explosion in Waverley Station Mine.
- 23024 Q That was a confession? A Yes.
- 23025 Q Was that a gas explosion? A Yes.
- 23026 Q What was the effect of that? A Five men were hurt, three seriously, and two slightly.
- 23027 Q Were you in the locality? A I was in the coal district to it. I was the first that reached there and.
- 23028 Q And that congested with gas? A That congested by gas being ignited by a naked light.
- 23029 Q Was that an element in that explosion? A No, that was a mine where there was very little coal dust, because all the taking is done in a kind of free-shy, which makes very little dust, and it is one of these hard split rocks.
- 23030 Q You had a not had any personal experience of gas in Australian mines, have you? A No.
- 23031 Q I think you advocate the universal use of safety lamps? A I do.
- 23032 Q Then you think there should be no exceptions? A None whatever. No naked lights should go into a mine wherever gas has been found, even if it is years ago.
- 23033 Q You think then that gas should have been found in a mine before they should be compelled to use safety-lamps? A Once found, always there—liable to catchfire.
- 23034 Q Now, with regard to blinding, I think you wish to express some opinion upon that, don't, with regard to material used for blasting—what is your view? A Twenty-five years ago it was all black powder, and compressed powder.
- 23035 Q What has been the result of the experience of the last five and twenty years in determining the particular explosives to be used? A I believe the last two explosives that I remember well were both caused by shooting— they were the Gais and Mierle's Mine.
- 23036 Q Shot-bling with gunpowder? Yes.
- 23037 Q What do you advocate? A No blasting whatever.
- 23038 Q And you would get the coal down by other means? A Yes.
- 23039 Q You know what the "permitted explosives" are in England? A Yes, I have read them.
- 23040 Q You do not even believe in using them? A No, I do not believe in any kind of explosives in a mine.
- 23041 Q How would you get coal down mechanically, commercially? A By hoisting.
- 23042 Q And what do you suppose that would do in the end, as compared with blasting? A Nothing, if you introduced machinery and coal-cutters. I saw coal-cutters and thirty years ago.
- 23043 Q Blasting is used in Great Britain in this day? A In some mines, not where I come from.
- 23044 Q Not in West country? A Not in South Yorkshire, in the mines that I have mentioned, there is no blasting there.
- 23045 Q Do you mean to say that blasting is not used at all? A No, only in very special cases, and then the men are withdrawn from the mine.
- 23046 Q That is the Langwell system? A Yes, I am versed in all these systems, the Bard and Pillar, the Langwell, and the Road or system.
- 23047 Q It would be necessary to adopt these systems of blasting were abolished? A It would, certainly.
- 23048 Q You do not know of any objection to these systems being applied to the Australian mines? A No, I have been in some Australian mines where they could adopt the Langwell system.
- 23049 Q Where is that? A West Wyalund.
- 23050 Q Is that common to all Australian mines? A I cannot say.
- 23051 Q From what you saw in that mine, you think there would be no difficulty in working on that principle? A The system of working coal depends very much on the class of coal that you have to contend with. For instance, in the Wyalund Colliery, it was impossible to work that on the Langwell system, or on the pillar and road system. They worked it on the Bard system, that is, making all their travelling ways through the road, that they worked away from them.
- 23052 Q In all these cases it is a question of soil? A Yes.
- 23053 Q In West Wyalund, you saw the conditions, and you think they would be favourable to the Langwell system? A Yes.
- 23054 Q But you will not express an opinion on the southern mines? A No, I would not. I have inspected a mine in the south where it could be worked on the Langwell system, and not very far from Kynsle mine. But that was a waste, it was not a mine at all. It is where they built that new pit, I think they call it South Kynsle.
- 23055 Q So, South? A More gold than coal, was not it? A I think it was.
- 23056 Q You have formed the opinion that no mine should be allowed to fire a shot? A No.
- 23057 Q Shots should only be fired by authorized people? A Yes.
- 23058 Q And then only when the working places have been tested for gas? A Yes.
- 23059 Q Do you believe in wandering about where there are to be fired? A No, I do not think it is necessary in working places. I believe in travelling ways and haulage roads being widened, but my opinion is that there is not that amount of dust that accretes nor any there is in the mine.
- 23060 Q Am you a reader of and mining literature or else? A Where I have time to do so.
- 23061 Q You do not know, according to the latest authorities, what is the greatest quantity of coal dust necessary to produce an explosion? A No, I do not know.
- 23062 Q You know that it is recognized as a greater danger now than it was twenty-five years ago? A Oh, yes, lot it is not the primary cause of explosions though.
- 23063 Q What, in your opinion, is the primary cause? A Fire-damp.
- 23064 Q And, in your opinion, I am sure, that is the first thing to be looked for, first, fire-damp, second lamps, third, ventilation? A Yes.
- 23065 Q Now, what is your opinion upon the subject of retarding old workings? A Old workings? Well, I am a great believer in all abandoned workings being properly both sealed off. It is impossible to retarding them.

23066.

19081. Q. That is what is called "rolling off"? A. Yes, that is adopted in many of the large mines down in Yorkshire. When a large area of coal is worked out, that district is completely worked off.
19082. Q. So that nothing can come from it? A. Nothing at all. If you have a bedstead of brickwork, with 25 feet flange in between the bedsteads, it is impossible for any fall of workings to come out those bedsteads.
19083. Q. Is that a very expensive process? A. It is carried out regardless of expense.
19084. Q. And you advocate that? A. I advocate safety first, before expense.
19085. Q. You have found gas in old workings? A. Yes, many times.
19086. Q. You do not think it is sufficient to have an outlet from the gail into the return airway, taking care that there are no openings into the intake airway? A. Well, if that was done, it would be only on condition that those workings had direct communication to the return airway, and that that return airway did not pass where men were working.
19087. Q. I think you have some experience of fire-damp being found in a mine in which it had never been found before, and an explosion taking place by a fall? A. Yes.
19088. Q. Naked lights were used in that case? A. Yes.
19089. Q. What was the extent of the fall? A. Not a very large one, not more than the space of this room. Five men were seriously hurt.
19090. Q. Just let us hear what took place, a fall took place, what did that lead to? A. The fall took place, and forced the fire-damp out of the gail, and, about 100 yards away from where the fall took place, there was a man working with a naked light, and men were working further along. An explosion took place at the first naked light, and the men further along were burnt also.
19091. Q. How far did that explosion extend? A. I was in a station about more than a quarter of a mile away, and I hit the force of the explosion, and I had some idea where it had come from, and I made for the place.
19092. Q. And how far was the naked light from the outlet of the gail? A. About 100 yards, he was working from where the fall of coal took place.
19093. Q. And after the fall, were there evidences of any injury, any losses? A. None whatever; not with a very small number like that.
19094. Q. Was anybody hurt in that explosion? A. Five men were seriously hurt.
19095. Q. Then the conclusion you came to was that that fire-damp was in the gail, up in the roof, I suppose? A. Yes.
19096. Q. Could it be got at beforehand with safety? A. It could have been tested and found there, but it was never thought of.
19097. Q. And how could it have been got at? A. By ventilation.
19098. Q. And what height was it? A. Not many feet, a few feet.
19099. Q. Supposing it had been worked off, and the fall had taken place, what would have been the effect? A. In that case it would not be worked off, because it was in the original working place, on the Longwall system. That was a working in progress, not an abandoned working.
19100. Q. Had that place been inspected? A. No, it had not. Gas was never tested in the mine prior to that time.
19101. Q. If it had been suspected, you say it would have been found, and rolled off by ventilation, and the explosion prevented? A. Yes.
19102. Q. Would you advocate old workings being inspected for gas? A. Yes, every entry in the road should be inspected.
19103. Q. When the entry came to great heights, and there is a likelihood of further falls, would it be safe to go in? A. I have been in many times in a height of 50 feet.
19104. Q. And one you contribute to that height? A. No, that is the difficulty.
19105. Q. You have formed an opinion as to the relative merits of fans and furnaces, as means of ventilation? A. Yes.
19106. Q. Which do you prefer? A. Certainly I should be greatly in favour of fans for ventilation.
19107. Q. That is, if you were starting a mine? A. Yes, of course the old system of ventilating with furnaces is dying out in all the large coal districts in England.
19108. Q. Do you think that more mines are well-ventilated with furnaces? A. Yes, I know one of the best mines in the world that was ventilated with a furnace, but they have now put in a fan.
19109. Q. What is the name of that mine? A. Wemyss's Schismers.
19110. Q. What was the fault that led to the adoption of the fan? A. On account of their extensive and improved workings.
19111. Q. The mine was being developed very rapidly, and the fan became a necessary development? A. No fault about that. That has been agreed since I came out to Australia. I have a photograph of it here, which I will show in the Commission.
19112. Q. You do not think ventilation is remedy for all the difficulties of coal mining? A. No. Ventilation is very good, but there are other things to be taken into consideration as well as ventilation.
19113. Q. And which do you think comes first as a precaution? A. The adoption of safety lamps.
19114. Q. You put that first? A. First of everything. Always having correct.
19115. Q. Now, I have gone through your letter. If there is anything else you would like to say, leaving open this enquiry, and suggested by the evidence that you have read, you may state it yourself. A. I do not think I can make any further suggestions than I have made in the letter to you. As regards the adoption of safety lamps, I think I was the first person in New South Wales that ever introduced a modern safety-lamp into the colony. I took great interest in the Bulli explosion, and I got out a safety lamp from England and introduced it to the McEnteer Colliery, and I have correspondence here today in which he thanked me for the part I took in it.
19116. Q. Which lamp was that? A. The Monitor.
19117. Q. And what year was that? A. 1881.
19118. Q. Have you, in the whole course of your experience, heard of a case in which a fall, of itself, without gas, and without coal-dust explosion, has produced such a loss, by reason of the fumes, that it harmed people, that is to say, stung their hair and burned their skin in the manner described by you? A. No, but I can give you a very important instance of that. I will remember the great fall of coal to the Oaks,

Witness—J. B. Goodale, 19 March, 1893.

Qales, in 1872, when every lamp in that mine was extinguished by the fall. Men were knocked about, and limbs were knocked about, and some were slightly injured, but there was no explosion of fire-damp or coal dust.

20109. Q. Was there any burning? A. No.

20110. Q. Or singeing of the hair? A. No, and no explosion.

20111. Q. Was there anything in the effects that corresponded with what you told us of in that other mine where the gas was found to be present? A. No. The facts in connection, to be a heavy mine in Yorkshire. I remember that great activity in 1861. They took a new shaft in Ardsley, and in opening out new workings in the course of years there was a great amount of worked-out mine, and the best fall of coal took place, and there was a mine in the mine. There was a continuation of the air. It was a well-worked mine, worked with safety lamps, and there was an explosion used to it. There is no doubt a small a game. Some men were knocked about by being knocked against timber and props; but there was no explosion of fire-damp, and no explosion of coal dust, and no one hurt.

20112. Q. What was the extent of the fall? A. I could not say; but it was a very large one.

20113. Q. As near? A. More than that. It was the very first fall. They had been working there for some years.

20114. Q. What distance did it fall? A. It was a 5-foot mine.

20115. Q. And the mine was not? A. Yes.

20116. Q. And no pillars left in it? A. There were, in certain mine; but this was a portion where the pillars were not.

20117. Q. It was a fall of 5 feet over more than an acre area? A. Yes.

20118. Q. Was it a sudden fall? A. Yes.

20119. Q. And what was the size of the surface? A. I could not say.

20120. Q. At all events, the mine was sufficient to overturn ships, and men, and injure men? A. There were some men slightly injured by being knocked about.

20121. Q. But not an instance of burning the hair or burning the skin as you have described? A. None. I was not there, of course.

Cross-examination by Mr. Wade.—

20122. Q. You say you were not there? A. I was not there at the time; but I remember the case well.

20123. Q. Then it is simply hearsay,—it is not your own knowledge? A. I have the knowledge that it occurred.

20124. Q. But the details you have no personal knowledge of? A. No.

20125. Q. You do not know how the coal fell, or under what circumstances? A. I tell you I was not present in the mine at the time.

20126. Q. Now, you say that in one of those fire-damp explosions the men had a release of the skin like Waterbury? A. Yes.

20127. Q. Where those who you would call "water blisters"? A. Yes; they would take place a little after, some few hours after, burning.

20128. Q. Are those what you call "water blisters"? A. Yes.

20129. Q. Do you mean with water in them? A. I do.

20130. Q. And you get the same kind of water blisters from a scald? A. I get the same.

20131. Q. And that is a distinctive mark of burning by flame, is it? A. Not always. I have seen men burnt in that degree that you could not recognize them.

20132. Q. There is no chance of blistering then, the moisture is all gone,—it is all charring? A. Yes. Right burning in an explosion would cause a blister, but when it is a severe burning you will find it is charred.

20133. Q. If flame is applied to the skin, and it does not char the body absolutely, it will draw the moisture to the surface? A. My experience of the bodies that I have seen after an explosion is that, not only is the hair singed off, and the skin burnt very brown, but, if you find slight burns on some parts of the body, you will find that great blisters will arise.

[Examination concluded.]

[Mr. Wade asked that Mr. Mangan should be recalled.]

Mr. J. C. E. MINGATE, previously sworn, was further examined, as under:—

Further examination by Mr. Wade:—

20143. Q. Did you make any examination of road-ways for Mr. Alderson in the last of August last, apart from what you have told us about? A. I only examined twelve samples for Mr. Alderson, as others.

20144. Q. Was in the Birmingham?—was you the Mineralogist to the Home Department? A. No.

20145. Q. Who is it? A. Mr. Card.

20146. Mr. Wade. On page 32 of Mr. Alderson's evidence at the Inquest he says that he gave some samples of coal and dust to the Mineralogist,—I want to know if that is the present witness?

20147. Mr. Alderson. No. It was Mr. Card.

[Examination concluded.]

Mr. THOMAS FORTON was sworn, and examined as under:—

(This witness was called by the Commission, who asked Mr. Bruce Smith, as a matter of convenience, to conduct his examination in-chief.)

Examination-in-chief by Mr. Bruce Smith:—

20148. Q. What is your name? A. Thomas Forton.

20149. Q. And you are what? A. Mining Engineer.

20150. Q. I think you are Consulting Mining Engineer at the present time to not or two mines, are you not? A. For the Metropolitan Colliery, and I visit other collieries occasionally.

20151.

29154. Q And I think you are one of the witnesses for the Colliery Managers' certificates under the Coal Mines Regulation Act? A Under the Coal Mines Regulation Act.
29155. Q Now, what has been your experience in and among? A Over thirty years' active management; but I have been associated with mines for thirty years.
29156. Q And had you practical experience from early life? A From the age of 15 I have gone through every department of it.
29157. Q Where were you manager first? A In Staffordshire.
29158. Q In what mines? A Bough Hay Colliery, Poundfield Colliery, Ashbridge Colliery, and others.
29159. Q How many years in England? A Over twenty, only thirty-five years from the time I was 15 years of age, but active management for about thirty years.
29160. Q Had you active management in New South Wales? A For ten years in the Wilksham Colliery. I developed it from nothing, under a ten years' agreement, as General Manager and Manager.
29161. Q Now, I believe you visited the Mount Kembla Mine after the explosion, did you not? A Yes; I went and offered my assistance, and spent the whole of one day there, on the Monday following the explosion.
29162. Q Had you an opportunity of observing things, apart from assisting in the rescue work? A Oh, yes.
29163. Q Where did you go over the mine with? A Mr. Roe, of Balmain Colliery, and Mr. Farns, his assistant, and Mr. Littlejohn, and Mr. Oliver, who is now dead, and several others—about seven or eight others.
29164. Q That is one day you spent at it? A The whole of one day.
29165. Q I think you returned by the Daylight Tunnel? A Yes, we brought out thirteen bodies that day, I think.
29166. Q What part of the mine did you devote your attention to? A I cannot remember the district, because I was there a stranger, but we went up the rope road, they said, as far as the No. 2 Right, to look for some bodies there.
29167. Q On to the main road? A Yes, and travelled over the roads to these places [indicating on map].
29168. Q That is in No. 1? A Yes.
29169. Q You found everything in a very disturbed condition, did you not? A Yes.
29170. Q Did you notice any bodies that appeared to you to be burnt? A Yes.
29171. Q Where were they? A There was one body in particular that I handled.
29172. Q Where was it? A They said they were there and saw there were an old man and a young man. Mary was the name given to me. Anyway, I noticed the young man was burnt very much about the arms. The skin was in ribbons. I touched it, and called the attention of Mr. Roe to it. The skin was blackened and burnt and curled up, and curled up like ribbons hanging down.
29173. Q And the hair? A The hair was singed.
29174. Q Have you had any experience of an explosion in which there was substantially burning in the old country? A I have had a great many explosions of mine explosions, and I have seen a great many dead bodies, as the result of explosions.
29175. Q Where those had been burnt? A Oh, yes, a great many.
29176. Q Were the indications on this body similar to those you had seen? A Similar to some of them.
29177. Q Have you ever doubt whatever, from your experience, that the effect on the skin and hair of this young fellow was produced by actual flame? A No, that was my impression.
29178. Q And based on all that experience? A Certainly.
29179. Q Have you had any experience of large holes producing important results? A Yes.
29180. Q Just tell me the largest you have all? A I cannot give you the exact area, because I have had so many, especially in the thick coal district, where the coal is 30 feet thick, and where we take out, not only that workings, but two or three workings afterwards, and in some cases we have had tremendous falls of rock there.
29181. Q Name one? A One at Whylap.
29182. Q Can you give me an idea of the area that fell in that case? A I suppose it would be over a couple of acres, probably, but it did not come all together.
29183. Q What depth did it fall? A We could not see the top of it. It came in a shaft, and the mine was 550 yards deep.
29184. Q What was the space that was open below the fall? A Not the 50 feet, but probably about 15 or 17 feet.
29185. Q But there was that space for the base of the upper part of it to fall? A Yes. There was a lot of rubbish on the bottom.
29186. Q Have you any idea of the time over which it extended? A It was some little time. It commenced first like a rumble, cracking the timber and hurting the pillars, and then the main mass withdrawn, and when it came like thunder, and it lasted some time.
29187. Q What did you call some time? A Perhaps five or ten minutes.
29188. Q When was the effect of that fall? A The effect was that it frightened us, and blew the lights out, and some of the men ran better clothes, and that was all.
29189. Q Were any of the men moved without warning? A No. I was in the mine; it frightened me to death nearly.
29190. Q But you were not knocked about? A No, but you could feel the concussion and the force distinctly.
29191. Q Were the tele knocked about? A They were blown, but not off the rails.
29192. Q There was no burning? A No.
29193. Q What is another large one you know of? A Another one was in a different mine altogether, what we call a new mine and develop road, two mines coming together in a certain position in a certain part of the district, and forming a vein 15 feet thick. That was worked out mainly, excepting small pillars about 5 or 10 feet square, and after we had worked out a certain area we would find all we could from these small areas on papers to show them us, and sometimes it would show, and apparently we would not know it is, and in that case we had very extensive falls.
29194. Q What do you mean by "show it us"? A Showing the coal fall.
29195. Q Over what area were these extensive falls? A From an acre upwards.

20102 Q Now, did any of those falls that you have ever met with do a great deal of damage by the accumulation and the force? A No. They would get lighter and very often. That is very common. And they would run steady of dust and frighten the men occasionally.

20103 Q But they would never explode explosively physically? A No, never.

20104 Q What opinion do you hold as to the accumulation of gas in the upper strata above the coal seams? A Do you mean in the mine?

20105 Q Yes. A Well, it is hard with it is quite possible for a collection of any kind to generate fire lamp.

20106 Q To generate it? A Randomly, as you know, is composed of quartz—silica—and largely with nuclei of iron, and may contain sherry matter; but it is impossible for it to generate CO₂, but it is possible to find hydrogen in the strata above coal seams, coming out of the fractures and cracks joints and joints before you get to the coal.

20107 Q You mean above? A Yes. Of course the gas has gone through the fractures into the sandstone. For instance, in the Fulmar shilling in its sandstone, I suppose about 1,000 feet above the coal seams, they met with gas, but they found some vegetable matter, pieces of coal pipes, and little tin shales, containing a lot of fossils, showing that there was vegetable matter which had generated the gas; but they went down later towards the coal seam, and they got yards and yards of gas from the seam.

20108 Q In the sandstone? A In the shales and sandstone, and as they got nearer it pushed the whole bottom of the shaft up bodily. What they had been blowing (blowing) before, now, for two or three times' work with two men, they could simply shovel it up. It was pushed up by the gas. I saw it myself.

20109 Q Did you find the opposite fact, in all the cases except where the fossils and vegetable matter were, the gas had come out of the coal seam and worked into the fracture? A It is impossible for it to have come from anywhere else.

20110 Q That it is not an uncommon thing to find? A No.

20111 Q Did it in the sandstone also? A That is very common, but it is blown off from the coal seam.

20112 Q Now, take the Mount Kemble Mine, is it feasible that gas should have accumulated in the strata above that seam? A I do not think there would be any accumulation in that sandstone there.

20113 Q In the fissures, if there are any? A I do not think so, there. I think that gas might accumulate in the old workings, in the waste, from the coal, and fill up the top part of it.

20114 Q You mean up in the open, as to speak, of the opening? A Yes.

20115 Q Even where the sandstone had fallen away? A It is quite possible for gas to have accumulated there, from the coal seam and the pillars left, as a spot, where it could not conveniently be removed with the ordinary ventilation. It is quite possible for it to have been there for a long time without anybody knowing it, and even after the ordinary sandstone had been made, and it is quite possible for gas to have been there in a position where it would not be safe for men to examine. It is quite possible, if you pass a current of air over the waste, that the air will not go right up, and, above a certain time, you may be able to find gas any time, though, underneath that, the current will almost blow the light out. I have seen that many times. So it is quite possible, that, even with the good ventilation, there may have been gas there.

20116 Q So that a subsequent fall would force that out? A Yes.

20117 Q You did not hear you would be called as a witness, and you have been listening for some time to the evidence here? A I have been trying to learn something.

20118 Q You heard Mr. Robertson say something about a wind that, what opinion have you formed as to its feasibility, as an explanation of what you heard resulted from the disaster, and what you saw present in the mine? A Well, from my own experience in all kinds of mining that you can mention, and from what I have read—and I have read most of the literature that has been written about these explosions—and from what I have heard in this Court, I do not see anything that favors that theory at all. I think it is altogether fanciful.

20119 Q Have you seen anything yourself, or heard anything in the course of the case, which leads you to think it very improbable? A I think it most improbable.

20120 Q Have you heard anything, in the course of the case or of the evidence, which you think would contradict the possibility of such a cause, as accounting for everything? A I think that what I saw myself, of the disastrous effects that I saw in the road, and the piling of the steps together, and what I saw on the surface at the entrance—all that could be accounted for by an ordinary explosion—the effects of an ordinary gas explosion.

20121 Q Could it be accounted for by a blast of wind only? A I do not think so, for one moment.

20122 Mr. Wade: Did you say gas only? A Yes, and wind.

20123 Mr. Bruce Smith: Why not by wind? A I do not think it would produce sufficient force, under these conditions of a fall, to do it. There are too many open spaces for the air to pass into. If you could suppose the force of a big bellows or a pump, or pump, then you might get tremendous effects; but, when you have all these outlets for it to go into, I do not see how it can produce a force or blast such as has been mentioned.

20124 Q Supposing the only outlet of that gas was what we call the 4th Right, the dimensions of that are 6 ft. x 12 ft. Supposing that were the only outlet, what would you say then as to the possibility of the wind blast producing the effects that you saw? A I do not think so, for a moment.

20125 Q Now, apart from these effects of force, are there any other effects which you saw, and which you have heard evidence as to this Court, which, in your opinion, could not be produced by the blast? A Well, the blast could not produce those to strike the wooden chais, or to strike the rails of the bench of those men, or to have the effect in the extent that it will set up as I saw it, and so violent—I do not think it would, for one moment.

20126 Q Have you heard enough of the case, added to what you saw, to form an opinion as to the cause of this disaster, taking what you saw, what you said before you came into Court, and what you heard in the Court? A I can only express an opinion, not knowing the details of these plans, but, from what I have followed and depicted, it is quite feasible that gas entered as that gas in an ascent, and that there was a fall which forced that gas through this open space you speak of as to the current light, when there would be an explosion, and then that the coal dust—you know it would lay hold of the coal dust—would, of course, increase the force of the explosion, and it would account for the effects which I have heard mentioned and which I saw myself.

20127 Mr. Wade: Q What would lay hold of the coal dust? A The gas.

20128 Mr. Bruce Smith: Q The ignited gas? A Yes.

29328 Q. Now, in your opinion, how would that gas tend not, come out, from that gas to the naked light? A. It would be forced out, I cannot tell you exactly. It would be the same as you blow it and not.

29329 Q. Would it come out as one block, as it were, or would it tend down? A. It might tend down, to some extent.

29330 A. (The Witness.) Mr. Fenton has not seen the plan, if you put the question to him as the plan, it will be more easily answered by him.

29331 A. (The Witness.) (After explaining plan to witness.) Q. Now, how do you suppose that the gas would come down in that point (Morison's light)? A. It would be forced from there (With Right), and the point would touch the light there (With Left).

29332 Q. Would the centre of it be at the point at which the tongue caught, or would the fire travel up towards the left light?

29333 A. (The Witness.) Please do not lead.

29334 A. (The Witness.) It would be better to ask Mr. Fenton where he thinks the operative centre of the explosion would be, under these circumstances.

29335 A. (The Witness.) Q. Where would the operative centre of the explosion be, if the gas came from the left light and was ignited at the left light? A. If the gas was trailing some distance down there, heated up to the light, then the centre would not be where the light was, but it would come back into the body of the gas and the force would be from there.

29336 Q. Then, when the gas was ignited and that explosion took place, I think it that that would cause coal dust and create the coal dust? A. Certainly.

29337 Q. And there would you expect now a series of explosions? A. That would depend upon the extent of the coal dust in the mine, it may be so probable, and it may not, it all depends on the conditions of the coal dust there.

29338 Q. Now you have heard a number of recommendations. What is your opinion as to the advisability of requiring deputies and check-down to pass an examination? Does Your Honor wish Mr. Fenton to be examined on them?

29339 A. (The Witness.) I should imagine Mr. Fenton can give us very valuable suggestions as to various matters.

29340 A. (The Witness.) Very well, Your Honor.

29341 Q. What do you say about that? A. There is an serious objection to the deputies and the foremen having to pass an examination, at the same time, I think a competent Manager would be able to judge best whether men competent to appoint as foremen, but have no nervous of person, supposing that the examination is carried out properly. There is not to a doubt, in every mine, that the candidates would have had experience in that actual work, otherwise, you might get young fellows who were very smart and would answer every question I could put to them as well as I could myself. They must have had experience in the mine, and then we could test them as to their experience in the mine, and see what they had done and how they shaped.

29342 Q. You mean that a purely theoretical examination will not do? A. It must be a practical examination. You may have a man there who does not understand the nature of gases, but he may understand the importance of them as well as you do.

29343 A. (The Witness.) Q. I suppose that only men who are familiar as to the experience of the candidates would be the Manager? A. Yes.

29344 Q. After all, I mean back to the Manager? A. Yes, I say the Manager is the best judge of the men, there is no doubt of that, but, at the same time, if you have recommendations, it will mean the men's self-respect, they will have some idea of their responsibility. They are proud of having passed an examination, and it makes them better men, in one sense, but, at the same time, I do think that the Manager himself would be the best judge of who is a competent man.

29345 A. (The Witness.) Q. Then all depends on the competency of the Manager himself? A. Yes.

29346 Q. And he would rather have to have a lengthy experience of them, or put them through that examination himself? A. Yes, seeing his responsibility, and what is required by the Act, he should have that sense.

29347 Q. I suppose you have found, as Manager, that you have had very good men who have come in your territory, who may have been well qualified for the position of deputy, but of whom you yourself had no personal knowledge, and you could not, from your own personal experience of those persons, have appointed them as deputies or that there? A. I have had strangers, whom I have not known at all, whom I have found splendid men.

29348 Q. But a certificate of having passed this examination would take the place of your personal experience in that case? A. I would not rely upon that for a moment.

29349 Q. Would you regard that as an additional security? A. It is a security to a certain extent, if the examination is carried out properly. I would not pass a candidate unless he could prove to me that he had gone through the mill and had had experience. You must remember there are a great many mines in the north where there are splendid men who have never seen gas, and have never handled a safety lamp, and never fired shots.

29350 Q. Do you think that the examination might be held in two divisions, and certificates be issued for the deputies to take charge of mines where gas is known to be present, and another class of certificate issued to those qualified to take charge of mines where gas is not known to be present? A. If you do not do something like that, you will soon have to exclude the men who have never had an opportunity of getting experience of gas.

29351 Q. If that were done, would not that get over the difficulty? A. Yes. There would be men very good men who would be excluded by an examination.

[The Commission then adjourned until 2 p.m.]

ADJOURNMENT

[On resuming at 2 p.m., Mr. W. H. Frost attended to take shortened notes of the evidence and proceedings.]

THOMAS FENTON, previously sworn, was further examined, as under—

Examination by Mr. Bruce Smith (proceeds):—

29352 Q. You were going to say something before lunch that required a little consideration? A. That was about having two certificates.

29353 Q. Mr. Fenton made a suggestion to you about two classes of certificate for the deputies and the check-downs? A. That would complicate matters.

29354.

Witness—T. Parson, 12 March, 1935.

20122. Q What sort of an examination would you subject them to? A First, they should have something of the Special Rules which apply to the police, and also something of the General Rules, and then it should be a candidate that they should have had experience in gas in some extent.

20123. Q Practical experience? A Yes. And then, of course, the candidates would put them through an oral examination as to that experience, and what they had done before.

20124. Q Would you subject them to a written examination? A No, it is an oral examination.

20125. Q As a matter of fact, how often do the Candidates now examine the Under Managers? A Twice a year.

20126. Q Would it be practicable for the Board to hold special meetings, if a Manager wanted an emergency to test a particular man as to the position of deputy and what time? A If the Board of Candidates should then it should be done, they could call a meeting to do the work.

20127. Mr. Foxworth: Q Dependence of the report? A That would be a matter for them to consider. They would have to consider the expense. We should respond to it, if possible.

20128. Mr. Bruce Smith: There might not be a number of adequate certificated men in a mine from whom the Manager might wish to choose a deputy. If a certificate was a condition, these men would have to wait until they got a certificate. Or do I understand that they could pass an examination? Would it be practicable for the Manager to advise a number of men that they might, at some future time, be selected, and that they should pass the necessary examination? A I presume that there would be twice run the material between the selection that they desired to have an examination and the actual examination taking place, and they might be able to make arrangements to prepare in the interval.

20129. Q You have been told by the Manager of the Metropolitan Mine that, whatever examination a man passed through, if he had not had experience in that particular mine, it would be impossible to choose him as a deputy? A I would not go so far as that. You might get a deputy who has had experience of gas and long experience of mining, and he would be quite competent to fill that appointment. Get a man wherever you find it. If a man has ever had experience with gas, you can bring that to bear in any mine.

20130. Q You heard Mr. Jeffries give his evidence, and he was particular in showing the mode by which these deputies were chosen from the mine. Do you think it likely that the Manager of the Metropolitan Mine would take a man from outside? A Many Managers would not do so.

20131. Q Can you understand why? A Certainly.

20132. Q Then Mr. Jeffries' argument would be somewhat directed to you? A They give preference to men who have had experience in their own mine, but it does not follow from that that there are not men outside.

20133. Q He says that he would not have found it to take a man from outside, simply because he had passed an examination and have how to find gas? A Not merely because he had passed an examination.

20134. Mr. Ritchie: Q Would not the same argument apply, with greater force, to the case of Managers and Under Managers? A Yes.

20135. Mr. Bruce Smith: Q You say that you think the Manager can run the operations of a mine just as well as the Candidates? A I have said that a competent Manager would be the best judge of deputies.

20136. Q He would have to go through the criticism of the Manager? A Yes.

20137. Q Do you think that I would restrict the choice of the mine themselves, where they might be practically competent, but might not be able to get through a skill examination? A I do not say that there would be a technical examination.

20138. Q It is in my way. You would examine a man technically as to the finding of gas? A That would be a practical examination. He might be a good student, without knowing anything of the conditions of gas.

20139. Q You would examine him? A We should have to ask him where he had had his experience, and whether he had seen gas, and where he had seen it, and other details.

20140. Q Under those circumstances, would not the preference of a manager be quite on good? A I told that I think that a competent Manager is the best judge of a deputy, but that I have no objection to the having of a certificate.

20141. Mr. Ritchie: Q You said that a Manager ought to be competent to make a selection; but if, after the disaster at Mount Kemble, a person was appointed who had no practical experience of gas, would that show competency on the part of the Manager? A I should think he would be incompetent.

20142. Q Would you regard an appointment like that, after what had happened at Mount Kemble, as a proper appointment? A Certainly not.

20143. Mr. Bruce Smith: Q Would you recommend that the check inspectors be selected to a similar examination? A They might be more competent to pass an examination than the deputies and drivers, because they have to judge as to the safe condition of the mine.

20144. Q Amongst other things, they have to test the air? A Yes.

20145. Q Do you think it is so necessary that they should pass an examination as to the procedure for deputies and drivers' position? A I would not go so far as that. It is for the mine to select the check inspectors, and, if they are satisfied, well and good. We have sufficient check outside, we wish to satisfy the Department. Amongst the miners are plenty of practical men who are quite competent to judge of the safe condition of a mine.

20146. Q You think that the examination is made for the miners' own safety, and that that is sufficient inducement to them to examine men? A They probably think that they can get better men than those who have certificates.

20147. Q As to testing gas—should it be a purely voluntary matter with the miners whether they report gas? A They should report all cases of gas.

20148. Q Do you think it should be made compulsory? A Yes.

20149. Q That is for the mine's own safety? A Yes.

20150. Q Is it your view that the safety for their own safety is not sufficient—should there be compulsory measures—[interrupted]

20151. Mr. Ritchie: Q That is an error? A, I have that many miners see gas and do not report it. I would make it compulsory that miners should report all gas found.

20152. Mr. Bruce Smith: Q Mine? A By a special rule and a penalty.

20153. Mr. Ritchie: Q It is now similarly requiring all miners to report gas? A The safety of the mine may depend on the reporting of gas by the miners. It is a matter which affects the management and the miners alike.

25291. Mr. Evans Smith. Q The question is, whether the safety of the miners is sufficient to lead them to obtain competent men as check inspectors—do you think so? A I think they will do so.

25292. Mr. Johnson. Q The miners say that there is great difficulty in getting competent men to take up the duties of check inspectors. I want to ask you whether the miners should be restricted to three choices by the present Rule 75, which contains the words "Not long mining engineers," thus deterring them from appointing them persons? A I think that mining engineers who represent the mine owners should be distant from the miners entirely. In any event, as Mr. Johnson said, the three list, if they are the development in certain mines. Happening I was engaged as a check expert on a certain mine. I would go there and see things which the ordinary miner should not see—a regular hauler. I would go into holes, and I would be asked, "Do you know anything about such and such a mine?" It is all right. Have you not some difficulty there that would affect the miners? I should not disapprove what I had seen in the performance of my duty, but there are a great many who would do so.

25293. Q Do you profess? A In my profession. I say it applies to every profession.

25294. Q Is that your objection? A That is the objection I have. It is best left to the miners to have their own men.

25295. Q Inspectors are employed by the owners, and might favor the interests of the owners.

25296. Q Do you not think that the miners might appoint a mining engineer to do the work regularly for them? A If they appointed a man to do that duty for them, and to do nothing else, it would be a different matter.

25297. Q Would they do so faithfully and honestly? A Some of them would.

25298. Q Would they be powerful? A I would do it honestly, but there are mining engineers who are corruptible in their nature, and for poverty, shillings and pence they would do anything in any mining.

25299. Q Might not the work be done by competent persons? A You have among the miners good, capable, men, of sound judgment, who are up to the competition to go through a mine and see that operations are properly carried on. With mining engineers, some persons may consider one a good man and ten others may consider him a bad man.

25300. Q There may be good men amongst the miners who are looking for under manager's positions? A I think you can find such on your own mine. There should be plenty of good men who could do the work.

25301. Q Would they be motivated by the words "working men"? Q No, if they have a man who has had practical experience in mining, if he has had a long experience and is a sound man, there is no objection to him.

25302. Q They should not have that restriction? A No.

25303. Mr. Johnson. Q As far as the safety of the roof and the sides and the presence of gas in a mine is concerned, do you think that an extremely intelligent man, selected as a check inspector, is competent to report on those matters in his fellow workers? A The man I have in my mind is quite capable of judging of the safety of the roofs, the roof, the headings, and the ventilation of a mine.

25304. Q As far as the management is concerned, of course we have the Government Inspector, and the miners who have that protection? A Certainly.

25305. Mr. Johnson. Q Do you think all miners are competent to handle the hydrogen lamp? A No.

25306. Q Is there anything to prevent the miners putting the hydrogen lamp into the hands of a check-inspector? A He would have to be taught how to use it.

25307. Q Is there any power to prevent a man going into a mine with it? A There is no power, but a man might realize that the mine and get himself into mischief. There is no law to prevent a man taking the hydrogen lamp into a mine; but, before he did that, the Manager would have something to say, because he would be putting the mine in danger.

25308. Q Could he do anything? A He could raise an objection, and send to the Department. If it was proved that a man took a lamp into a mine and endangered that mine something would be done—something would be sure to follow.

25309. Mr. Evans Smith. Q Do you think that a Manager would have power to stop a check-inspector taking a hydrogen lamp into a mine, when the check-inspector would show he knew how to use it? A He has no power that I know of.

25310. Mr. Johnson. Q Although the Manager has no power legally, do you think that the reasons raised by a Manager would be given due weight to in any Court? A Certainly they would.

25311. Mr. Evans. Q A hydrogen lamp contains an explosive substance? A Yes.

25312. Mr. Evans Smith. Q Would it not be as dangerous in taking an open light into a mine? A It would be very risky, if a person did not know how to use it.

25313. Q What is your view as to the Recommendation (No. 5) that the Inspector should have power to order the use of safety lamps? A Yes, subject to arbitration.

25314. Q That is the suggestion proposed—that the Managers should have a right to require arbitration? A Yes, they should have that right.

25315. Q On the one mine the lamps would be used? A Yes, I quite agree with that suggestion.

25316. Q On the subject of ventilation, by furnace or by fan (No. 2). Do you agree that furnaces should be prohibited in a mine, and that all mines should be required to adopt fans, without limitation. This would apply to all mines excepting those which employ under twenty men? A I do not think that the present arrangement should be disturbed, where the furnace are doing good work, but, when the furnace had to do that, the Inspector should have power to suggest improvements by the way of an inhibiting law; and if the suggestion is not carried out, the matter might be the subject of arbitration.

25317. Q With regard to fans, do you consider that they are so superior that you would require any new mine employing over twenty or thirty hands to have fans erected? A Yes (I would go in for it).

25318. Q What is your experience as to furnace ventilation in existing mines—is it satisfactory? A It is very unsatisfactory in many cases, and in many cases it is satisfactory. It depends on the condition of the mine, and the extent of the mine.

25319. Q As the mine develops, it becomes a question for further consideration, as regards the means of ventilation. A Yes—a fan is far superior to furnace ventilation.

25320. Q You heard the suggestion that waste workings should be absolutely sealed off (No. 4). Do you approve of that? A No.

25321. Q There is a motion proposed that the outlets should be into the mine always only—do you approve of that? A That is reasonable.

25321.

Witness—C. Foster, 16 March, 1912.

- 20301 Q There should not be any openings into the main storage? A No, there should not be.
- 20302 QW. Foster? Q Do you believe in ventilating a goat, if it is possible to do so? A Yes.
- 20310 Q What about allowing air to come into it? A You can make it, and let the air go through the return airways.
- 20314 Q The question is as to the supply of air, passing out to the return, from the windward side of the goat? A The opening from the goat would lead to the return airway.
- 20315 Q Has there would you provide for the windward side, when cooling? A You would take the air from the return.
- 20318 Q You would have special cooling? A It would depend on the conditions; but you could arrange so that you could send some of the fresh air into the old workings.
- 20319 Q That would be a mine in a contact with the intake airway? A It would take all the return gases to the return airway.
- 20324 Q As long as there was no reversal through an accident? A Yes.
- 20325 QW. Foster? Q I suppose you have that it is a common practice for old goats and workings to be ventilated by the return air from the working districts. There is nothing wrong about that? A No.
- 20326 Q It is proper, if the return air can be obtained in that way? A I believe in that. If necessary, you might also send some fresh air into a goat.
- 20331 QW. Foster? Q Would you treat a goat as so to allow the return air to circulate as well as the open mine, and yet so that the air can pass straight across, and go through the goat? A Yes.
- 20332 QW. Foster? Q What is there to prevent the air from the return coming into the intake? A There is always a door to prevent that.
- 20333 Q You would have openings on the intake and on the return? A There are always openings.
- 20334 Q What do you think of Mr. Goodwin's system of double bank headings? A In some of the work that is very effective.
- 20335 Q On the subject of cut-throughs being limited to 25 yards [See E]? A That is objectionable.
- 20336 Q Why? A Because the different conditions require the different sizes of pillars. What would be safe in one case would be dangerous in another.
- 20337 Q Who is the best judge in the matter? A The Manager.
- 20338 Q Which systems are most concerned by giving proper consideration to the question? A The narrow and the narrow-bank.
- 20339 Q You have seen great quantities of coal lost in New South Wales through having pillars too small? A Yes.
- 20340 Q Is it a great advantage to have these cut-throughs at short intervals? A I do not quite see what you mean.
- 20341 Q It has been said that, by having cut-throughs at short intervals, there is an improvement in the ventilation? A Where you have good ventilation, there is no reason why you should not go 100 yards without cut-throughs as well as 50.
- 20342 Q Do you think there is any great objection to having long lengths without cut-throughs? A No—so long as the ventilation is up to the mark.
- 20343 Q It is a matter of the ventilation being good? A Yes.
- 20344 Q The Manager should be shown when kind of pillars it is necessary to make for the safety of the mine? A Yes. Before the last it was passed the owner had to go 50 yards without knowing. One hundred yards, with good ventilation, now, is better than the shorter distance without ventilation.
- 20345 Q What is your idea as to pillars? A You can lay down no definite rule.
- 20346 Q Name the largest shaft you have seen at home? A The mine at the Holland Cope has work differently. Ten yards by 50 all round the main shaft would be constant working.
- 20347 Q Do you know some pillars are 75 yards square? A That is common.
- 20348 Q Do you know what size they are in the Metropolitan mine at present? A They are 100 by 50.
- 20349 Q You say that the matter should be left to the management, but the ventilation should be looked to carefully? A Yes.
- 20350 Q Do you think that it is desirable that depots should be interested with the hydraulic lamp for ordinary use? A No.
- 20351 Q Should they be interested in it now? A The men should be specially trained to the use of the hydraulic lamp.
- 20352 Q You have heard it proposed that the maximum quantity of air allowed per minute should be increased to 500 feet for each horse, instead of 100 feet, as at present [See E]? A I do not desire that.
- 20353 Q Do you think that the present system is working well and giving enough air? A I think that "adequate" ventilation should be provided. For twenty years I have worked under that provision; and the Manager was careful to see that it was adequate, and, if it was not, he would complain.
- 20354 Q What is your experience with regard to New South Wales? Do the mines keep close to the maximum, or exceed it? A In a great many of the mines that I have seen they have good ventilation.
- 20355 Q Do they adhere to it? A In the South—at the Metropolitan—they exceed it. They have 400,000 cubic feet of air per minute for 500 or 600 men; in other mines in the South that I have gone through the ventilation has been good.
- 20356 QW. Foster? Q Do you not think that it is wrong in principle to ventilate according to the number of persons employed in the mine? A Certainly.
- 20357 Q On what principle should the ventilation be? A On the amount of gas in, and on the general conditions of the mine.
- 20358 Q On the general conditions? A Yes. You may have only men in the mine, and 5,000 cubic feet of gas being given off per minute. If you reduce your air allowance to the statutory limit, what about the gas accumulating in old workings?
- 20359 Q Under that system of government by the number of persons employed, there is nothing to compel a Manager to keep the ventilation going at night when nobody is in the mine? A No.
- 20360 Q Is not that a condition which might be taken advantage of? A Yes, I have known it to be taken advantage of.

19301. *Mr. Stickle* | Q. I think the ventilation is supposed to be such as to draw and render harmless the gas found in the mine, and if there is only one man in the mine, you have to keep up the ventilation? A. Yes.

19302. *Mr. Robinson* | Q. If there are six men there, you do not want to provide anything? A. No.

19303. Q. But, if there is one man, and he is going round the mine to look at anything, you have to keep the ventilation going for that one man? A. Yes.

19304. *Mr. Brown Smith* | Q. It has been suggested that all doors should be made so that they would close automatically (No. 1) and it has been stated that this would take away the responsibility of the miners with regard to the closing of doors, and that they did not happen to close them automatically they would have them open? A. It would not be different in principle with the responsibility of the man. It is a common practice now for three doors to close on their own motion, but they do not always close, because pieces of coal get across them. I would have both provisions.

19305. Q. You would have both provisions? A. Yes.

19306. Q. There is a possibility now for leaving a door open? A. Yes, under the Special Rules.

19307. Q. You have never known it to be put into operation? A. No.

19308. Q. With regard to the question of double doors (No. 10). Do you approve of that? A. Yes.

19309. Q. It has been suggested that there should be a weekly measurement of air in each mine, and that a report should be sent to the Inspector (No. 11)? A. I do not think it is necessary. There is the Manager, the under manager, and the fan engineer. If there is any alteration in the ventilation, it would soon be noticed.

19310. Q. You have heard about the safety-lamp question (No. 12)? A. Yes.

19311. A. You have heard about the proposition of lamps to be kept on the surface? It is proposed that the extra supply should be equal to one-third of the number of persons employed below ground? A. I agree with that proposal, generally.

19312. Q. *Mr. Robinson* has suggested that, where safety-lamps are used on the assumption that some lamps would always be on the lamp room—the extra supply should be equal to one-fourth of the number of persons below ground, and, where safety-lamps are not in use, one-fifth would be sufficient? A. I think one sixth would be sufficient where lamps are used.

19313. *Mr. Foster* | Someone has suggested again that there should be a minimum.

19314. *Mr. Brown Smith* | Q. There was a suggestion that there should be a minimum by Mr. Brown. If you had a mine in which only five men were employed, a tenth of the number would be required, and that would be half a lamp—any one lamp. Would that be enough? A. No.

19315. Q. What do you think would be a fair thing when ten or twenty men are employed? A. Say for ten men—five lamps.

19316. *Mr. Foster* | A good many miners might want to go in in case of accident.

19317. *Mr. Brown Smith* | Q. It might be a good thing to keep one out? A. It would be a small colliery where only ten men were employed.

19318. Q. Take a case where a mine would be opening, and only a few men were employed. They might be gathered about in one of the way parts of the mine? A. That would be where a great many men would be employed generally, but temporarily only a few would be employed. You would have the lamps of the others who were not working. Still, I would have a minimum.

19319. *Mr. Robinson* | Q. Do you think that any colliery proprietor would object to spending £10 or so to provide the required safety lamps? A. I think that all mines should have a supply of lamps.

19320. Q. Do you think that any mine would object? A. No.

19321. *Mr. Brown Smith* | There are plenty of cases in which two or three men are making a living by getting coal, and £10 would be a restriction on that class of men.

19322. *Mr. Robinson* | I think that £10 is a ridiculously small amount to spend on such a matter. If the proprietor cannot afford to spend £10 for lamps, he should not start keeping a mine.

19323. *Mr. Brown Smith* | There are something like forty mines employing under twenty men each. There are several employing only one or two men.

19324. *Mr. Robinson* | It is just in those kind of mines that accidents occur.

19325. *Mr. Stickle* | Are these men getting coal for their own use?

19326. *Mr. Brown Smith* | No they can not; they cannot live by coal alone.

19327. *Mr. Foster* | Q. I think Mr. Brown suggested twenty lamps as a minimum? A. I think there should be a minimum of ten only. Not considering the one man who was there, that will be reasonable.

19328. *Mr. Brown Smith* | Q. You would not suggest that they should be kept in a room? A. No.

19329. *Mr. Foster* | Q. You would have the mine in position, but not the air? A. Yes.

19330. *Mr. Brown Smith* | Q. Now, we come to the question of watering—and that is a bigger question (No. 13). We have heard several hints up to the watering of workings and benches now? A. My view is that, where it can be done at a reasonable cost and without shorting the safety of the mine, it is very desirable that it should be done, but I do not think it is desirable to drive a hard and fast line. There are many mines where it is quite impracticable to water.

19331. Q. That would not be a very effective rule, if you put it in that way? A. No.

19332. Q. How do you think this would work—that the matter should be left primarily to the judgment of the Manager, and that the Inspector should have the power of enforcing a more extensive system of watering if he thought it necessary, and if the Manager objected, the matter should go to arbitration? A. That is a reasonable way out of the difficulty.

19333. Q. Do you think of any other way out of it? A. No.

19334. Q. You have to provide for the differing conditions of all mines? A. Yes, it is a reasonable solution of the difficulty.

19335. Q. It has been suggested in a vague way that Managers should be compelled to give more personal time and attention to the management of their collieries (No. 14). Do you think it is practicable to lay down any rule as to the number of mines a Manager should go into the mine, or the period within which such men should visit the whole of the mine? A. No, I do not think it would be wise to draw any hard and fast line as to what to do? Matters differ so much, and I think that every mine Manager would have sufficient sense of his own responsibility to himself, to the men, and to the owners, to examine the mine often enough to keep himself acquainted with all that is going on in it.

Witness—T. Pines, 18 March, 1903

20384 Q. Do you think it reasonable that a Manager should be compelled to examine part of the mine once or twice a week? A. I would not lay down my rule. If any bad results came from want of attention, it is known. There are the miners, the check inspectors, the measurement inspectors, and the whole of the management. The man himself would notice and there are plenty of clerks.

20387 Q. Would you approve of a rule that required a man to make an inspection of the mine once a month? A. I would prefer to rule at all.

20388 Mr. Robertson. Q. A Manager may lose his certificate through neglect of the mine? A. His responsibilities are so great and numerous that any Manager who has any sense of doing his duty would do it, and keep himself so busy with all parts of the mine.

20389 Mr. Butler. Q. I suppose it is necessary that the Manager should give much attention to the underground workings? A. I certainly think so.

20390 Mr. Robertson. Q. Do you know of any Manager who has not enough to do. You do not know of anyone who has time to go looking round? A. I have known exceptions to the rule, but as a rule they have plenty to do, and they do it. But there are exceptions, and in the case of those exceptions it has generally occurred to the Manager himself, and he has had to leave his colliery. It has been a question of time.

20391 Q. Who is the man most likely to notice these neglects? A. The Manager.

20392 Mr. Butler. Q. It would be a dangerous neglect to leave mine somewhat the presence of a Manager? A. Yes.

20393 Q. You may have an underground manager who may not be a brilliant man, and who may hold a certificate of service. In that case you depend on the Manager? A. Yes.

20394 Q. If the Manager went on the track for three or four weeks, and did not attend to the mine at all, danger might occur to the mine? A. Yes; and structural difficulties might arise too. I have known Managers who have been guilty of that sort of thing, and they have had to suffer.

20395 Q. You have never seen men working in the northern district now—they are working in collieries in the presence of what I have said? A. Yes.

20396 Mr. Bruce Smith. Q. You would not interfere with the Manager at all? A. No.

20397 Q. What objection would you have to a rule that the Manager should be to go over his colliery once a month and do the work he liked? A. I object to the principle. The Manager has certain duties laid down by Act of Parliament.

20398 Q. Do they do them? A. If not, the inspectors look them up.

20399 Q. Such a rule would give assistance to the man that the Manager was doing his work? A. Yes; but in my experience the majority of men do their duty, and why should all the others suffer for the sake of the exception?

20400 Q. Would they suffer? A. It is a head-and-foot line. It is the principle I object to.

20401 Q. Is it not necessary to provide some law for the minority of whom you speak—those men who do not do their duty? A. I do not think so. I do not know of the being there in any other part of the world.

20402 Q. The criminal law is not applicable to a large class of offences, yet you would not do away with it? A. In Great Britain, in America, and in the Continent, I do not know that such a law exists. In this House, with its small number as compared with other countries, I do not think the system is necessary. They do not do anything of the kind in other countries, and I think that our managers are quite as attentive as those are.

20403 Mr. Butler. Q. What would you do in the case of a Manager who is known to his workmen to be very drinking? A. He would not hold his position long.

20404 Q. Should there not be power to make him show cause why he should not be displaced? A. You might write to the Inspector.

20405 Q. Would you give them power to do that? A. Yes.

20406 Mr. Robertson. Q. Is there anything to prevent their doing it now? A. No.

20407 Mr. Butler. Q. Has the Inspector power to take notice of it? A. I think so. The rule is that the Manager has to do his duty.

20408 Mr. Bruce Smith. Q. You know that, if the Inspector is not satisfied with the way in which a man is doing his work, he can refer the matter to the Minister? A. Yes.

20409 Q. Is it provided so before?

It is in my law representation as made to the Minister, by an Inspector, or colliery, that any Manager or under manager, holding a certificate under the Act or under any Imperial Act, is by reason of incompetency or gross negligence, unfit to discharge his duties, or has been convicted of any offence against this Act, the Minister may cause inquiry to be made into the conduct of the Manager or under manager.

20410 Q. You think that is sufficient safeguard, and sufficient indemnity, for the Manager to look after the property? A. Yes.

20411 Mr. Robertson. Q. I suppose, in the ordinary course of a Manager's duty, assuming that he went underground every day, it might be that some part or parts of the mine might not be visited or inspected once a month? That is so.

20412 Q. Attention may be specially directed to some part of the mine requiring attention? A. Yes, that is so.

20413 Q. That would be more particularly applicable to a large mine? A. Yes.

20414 Q. Supposing such a suggestion were given often, it would be injurious for a Manager to comply with it? A. He would not be able to do so, in an extensive mine, of the kind you are mentioning.

20415 Mr. Bruce Smith. Q. Now, with regard to the case of the workmen, which is suggested should be attended (No. 11), do you think there is any means of for helping them? A. I am not sure.

20416 Q. Did you have the workmen grant in regard of this proposal? No.

20417 Q. Do you see any objection to white-washing them at the bottom? A. I would favour that.

20418 Q. Would you require them to be white-washed on the hanging rail, apart from the run of mine made on the hanging rail? A. You mentioned I wish down the hanging rail, and sometimes men have to do repairs to them. It would be a nice thing to have them white-washed.

20419 Q. Would you do so where the surface rope is in use? A. It need not be done when the surface rope is used.

- 23420 Q With regard to instructing employees as the means of escape (No. 18) Do you approve of that? A I see no great objection to it.
- 23421 Q You do not see any danger of instructing them in a way that would say to an employer, as an owner of a mine? A I think such instruction would be a pretence, and it would not cost much.
- 23422 Q Did you ever hear of a black list (No. 19)? A No.
- 23423 Q With regard to the use of gaspowder? A I think it should be abolished.
- 23424 Q And, provided employees provided? A Yes.
- 23425 Q Would you apply that to all mines? A Yes.
- 23426 Q It has been suggested, from the Syracuse District, that there should be some approved means of raising persons from a mine, in the event of accidents. What do you say to that? A There are means provided now, according to the Act.
- 23427 Q It is proposed that this shall be so the second shaft? A There are means provided now.
- 23428 Q Do you think the existing provision is sufficient? A I think so.
- 23429 Q Do you think that in a matter that is left to the Inspector? A I think so.
- 23430 Q It has been suggested that the machinery should be sufficient to lift the whole of the men out of the mine in an hour? A You cannot lay down that rule.
- 23431 Q Have you, in your experience, known of accidents in which better appliances for taking the men out of the mine would have saved their lives? A No.
- 23432 Q Do you approve of altering the method of appointing Inspectors, so as to give the miners a say in their appointment—that is, allowing the miners to nominate them? A I do not think that either the miners or the owners should have anything to do with the appointment of Inspectors. That should be taken out of their hands altogether.
- 23433 Q The Inspectors should be impartial persons? A Yes, their appointment should be fixed by the Cabinet.
- 23434 Q Who would you regard as impartial persons—the Cabinet? A Perhaps you could not go too close into that question.
- 23435 Q If the miners had anything to do with the appointment, might there not be an idea on the part of the Inspectors to please the people who nominate them, in order that they might be re-elected for another period? —(Interposed).
- 23436 *Mr. Moore:* Answer as a different illustration of the results of the elective system, as applied in political matters. I think the whole world has seen enough of it there.
- 23437 *Mr. George Smith:* Q It has been proposed that the whole of the roads to mines should be braked 4 feet high? A I do not see any good in it.
- 23438 Q What is your view of it, from a commercial point of view? A It would cost nothing.
- 23439 Q Do you know *Rebecca Martin Main*—that has been braked? A They had no wish to trouble them to work it.
- 23440 Q Why? A To make room for the bridge. It is not an extensive matter. The coal mine does really.
- 23441 *Mr. Moore:* Q If you disturb mine roads, they might come down more than you want? A Yes, certainly. If you start to take the bottom part of the road off, it may come right down for a height of 6, 10, or 11 feet.
- 23442 Q You want to have well along? A Yes.
- 23443 *Mr. Anderson:* Q At the *Marion Colliery* it is a thin roof? A Yes.
- 23444 Q Has the roof been braked for the convenience of the workmen? A No, to facilitate the bridge arrangements.
- 23445 Q Is not that a necessity? A Yes, in consequence of the coal being so thin.
- 23446 Q If it had been 5 feet 6 inches more, do you think they would have braked? A No.
- 23447 *Mr. Anderson:* Q What is the width of the mine? A 4 feet 6 inches to 5 feet 7 inches.
- 23448 *Mr. Anderson:* Q If it had been high enough to admit horses without braking, do you think they would have braked it to a standard height of 5 feet for the comfort of the men? A No.
- 23449 *Mr. Anderson:* Q Would it be an expensive matter to brack one road, for use as a travelling road, to 5 feet high? A As regards the question of expense, you could have to tell me the nature and the condition of the road.
- 23450 Q You could make the roof 5 feet high by taking the road up from the bottom? A Yes, but at the same time it is expensive work to lift up a road from the bottom.
- 23451 Q In a travelling road, you would not require to have it wide—3 feet wide would do? A You would not be satisfied with that, you want to take horses down it too.
- 23452 Q Do you not think that it is very uncomfortable for the men to travel with 3 feet 6 inch mine? A There are not many roads with 3 feet 6 inch more only.
- 23453 Q You will admit that, if the mine is 5 feet thick, in consequence of that it becomes difficult for the men who have 5 miles to travel to do so with comfort? A It is very heavy work for the men, so-called, but there are exceptional cases.
- 23454 Q How much would it cost the mine to brack the travelling road to 5 feet high, saying that the mine is 4 feet 6 inch. Would the cost be at all felt? Would it really amount to 2s. per day? A I could not tell, unless I saw the conditions of the road. In a case of that kind it would not be easy to brack one road. It would depend on the condition of the roof, and whether the roof required a lot of bracking afterwards.
- 23455 Q Would not the cost be so light that it would not be felt at all? A It would not be heavy for one road, but I do not see why you want legislation for it. It is an expensive bit of work done anywhere else.
- 23456 Q There are many things which people are pointed to do by law which previously were never done at all? A But you must allow something for the owners, and this is a very exceptional matter.
- 23457 Q Why exceptional? A It applies to a few collieries only. In most of the collieries the mine is 5 feet thick.
- 23458 Q If you were a working miner carrying loads, would you not think that you required more than 3 feet 6 inch in height to carry them a long? A I should prefer to, but I do not think that a matter of that kind should be subject to legislation.

Form—T. Foster, 18 March, 1903.

23428 Mr. Robinson. Q Have you observed whether the strata in New South Wales are of a more brecciated character, when exposed to the air, than the strata in the British coalfields? A Some of them are very brecciated.

23429 Q Comparing them with your experience of the British coalfields, do you say that they are more liable to be affected by the atmosphere in New South Wales? A In my experience in the different countries in England, the strata there are more likely to be affected by the moisture and the air than they are here, that is, taking the average generally.

23430 Q Do you approve of winding shafts being left unlined? A I disapprove of it. I think that every shaft should be lined.

23431 Q No matter how apparently secure? A It may look secure; but in time this slip off with the air. I certainly approve of every shaft, no matter what the strata is, being lined, even if it is only 4½ ft. work.

23432 Q Do you think that there should be any restriction in respect to Managers' certificates. Should only Managers who have obtained certificates in this State be allowed to take charge of a mine? A Do you refer to Imperial certificates?

23433 Q It has been suggested to me Manager who has obtained a certificate from the Imperial authorities should be allowed to practice here? A I think they should be allowed to practice, for the reason that a certificate of competency gained in the British coalfields is, generally speaking, worth more than it is here, because the experience is wider and more varied.

23434 Q You do not think they should be regarded as "Underminers" people, and not allowed to come here? A Generally not, or else I had better go back myself, and others with me.

23435 Q Do you think that it is in the interests of the mine themselves that the names of Managers should be restricted to men who have obtained experience here? A It would be a serious thing to carry that out. You might to encourage training men from home, who have had varied experience. Hence the experience is limited. You might wish here for twenty years in one or two mines, and are nothing excepting your own work.

23436 Mr. Robble. Q Does that not also apply to Managers in England? A No.

23437 Q Do they change? A They interchange a great deal.

23438 Q Have you not heard of Managers leaving in one colliery for a while? A In England the Managers visit different mines, inspect them, prepare reports on them, and discuss them papers.

23439 Mr. Robinson. Q You have two or six different mines in the British coalfields, whereas there is only one main here, and each mine at home varies very much in its conditions? A Oh, yes, take the Midland Counties in England, for instance. Within a normal distance of 200 yards, or 300 feet, you get more below 12 feet than, and you get more up to 30 feet, higher up. There are various kinds of coal, and they will be interstratified with variable thickness seams. This will all be worked on different systems, such as the Longwall, rise and pillar, square work, and pillar working in thick coal.

23440 Q Is it a fact that the mines are more freely and more generally worked than in the main here? A In mines that I have had to do with there has been a pump, from 12 to 18 inches, working, and I have known four of them in one colliery, with a view of coping with the water. I naturally know of a mine which does not have one large pump. Here candidates come up for examination who have never seen a pump at work in a mine, and who have never seen Longwall working. Smart young men some of them are, too. Some of them could waste a paper as well as I could.

23441 Q What is the knowledge here about working through water? A Some of the candidates here write some very striking at all. I have advised them to go to Dulwich to see working water in actual progress, and many have visited there.

23442 Mr. Robble. Q Do you not know that the Manager of one of the most important mines that we have has never been outside the State? Would you think he is competent? A He may be competent for the work he is doing now, but take him from that work to another mine, where the circumstances are different, and he would be incompetent.

23443 Q Would not that also apply to men who come from England—supposing an Englishman came to the Managoorina Mine here? A It would not apply in the same way.

23444 Q Does not that observation require some qualification? A Generally speaking, the experience gained in England is wider than it is here. I do not know any coal-field in the world where the experience is so limited as it is here. The mining here is of the simplest character, excepting in one or two collieries.

23445 Q Do you know that some of the principal mines of the South Coast have men as Managers who have never been outside the State? A They are good enough for the work they are doing now—as good as anyone would be, but take them from their own work, and they would be incompetent.

23446 Mr. Robinson. Q You would not object to the miners reporting any difficulties they meet with to the Manager? A As far as I am concerned, I should encourage it.

23447 Q Do you not regard such miners who report difficulties to the Manager as practically another deputy added to the mine? A He is assisting the Manager in carrying out his duties, and is also adding to the safety of the mine.

23448 Q He is adding to the safety of the mine? A Yes.

23449 Q He is relieving the Manager from anxiety? A To a certain extent.

23450 Q The Manager cannot be everywhere, and the danger cannot be everywhere. If there was a feeling that the work men could be depended on to report difficulties not with, it would give a greater sense of security? A Definitely.

23451 Q Do you think that the average Manager objects to the miners reporting things? A I do not think a Manager would.

23452 Q Would you make it compulsory for a miner to report? A I certainly would.

23453 Mr. Robble. Q Do you think that a miner might be subjected to a penalty because of reporting? A I do not think a Manager would do that kind of thing.

23454 Q You are speaking for yourself? A It would be a wrong thing to do.

23455 Q Supposing a man came out ahead of regulations time, and stated to the Manager that he must not because there was gas in his place—supposing he was immediately dismissed—what would you think of a Manager like that? A I should want to investigate both sides of the question.

23456 Q Supposing there were the facts? A It would be an inherent thing for the Manager to do that. There must be another side to that question.

23457.

Cross-examined by Mr. Wade —

18484. Q. Mustn't tell falsehoods sometimes? A. Yes.

18485. Q. Do you remember a man named Buggen? A. I think I do.

18486. Q. You put him through an examination, and gave him a certificate? A. I cannot say, but I think so.

18487. Q. Did he pass a satisfactory examination? A. He must have satisfied us.

18488. Q. Do you look upon him as a competent man who understands his work? A. If we did not, we should not have passed him.

18489. Q. He was fit for work as an order manager? A. Yes.

18490. Q. You examine men often on the question of gas? A. We always do. They have to prove that they have seen it, that they have had some experience of it, that they have found it, and that they know what to do when they find it. They also have to say which are the most likely places to find gas, we never forget that. We have put back candidates because they have not found gas.

18491. Mr. Justice. Q. Do you know that Buggen stated that he had not found gas? A. No.

18492. Mr. Justice. Before he was examined, he saw gas.

18493. Mr. Wade. Q. To be this even. Sometimes it is a mine in which gas has never been found yet? A. I do not know.

18494. Q. Supposing a young man had qualified in fiction, and you were required to know the way to detect gas, and to look for it, and, as far as you could find out, he would be thoroughly capable of being trusted with a safety lamp, to look for gas? A. That would not be sufficient.

18495. Q. Would you not give him a certificate? A. No, he must say that he has been in a mine where there is gas, and has used a safety-lamp to find it.

18496. Q. You would not give a certificate to a man who was absolutely competent in every other point, but who had not seen gas? A. That is a qualification which we require, they have every opportunity of seeing gas. How can you give a man a certificate of competency which would enable him to go into a mine where there is gas, if he has never seen gas in his life? We point to those coming gas, and visiting collieries where there is gas. Several candidates have done so. They have gone to the Montgomery Colliery, and to the Dudley. That is a qualification which we require, no matter how many the candidate may take in other ways. With regard to Buggen, he told us that he detected gas, and he showed us how he went about it, and satisfied us.

18497. Mr. Justice. Q. Did he tell you where he had seen it? A. I cannot remember, but it is a qualification which we never neglect. If he told us correctly, we would not detect them.

18498. Mr. Wade. Q. Was there anything in any of his answers to show that he was not speaking the truth? A. No, and his work was thoroughly well done.

18499. Q. If he had been appointed just before he passed at Kew, would it be inconceivable on the part of the manager to appoint him? I should say he would know how to find gas and detect it.

18500. Q. Would it be so not of inconceivable to appoint him? A. With my knowledge of his examination, I should say he was competent, if he told the truth.

18501. Mr. Justice. Q. If you were the manager, and knew he had not seen gas, would you repeat him then as a competent person? A. No.

18502. Mr. Wade. Q. Opinion may differ—after all the best test is the result? A. Yes.

18503. Q. What gas was your referring to when you said you would not appoint him? A. I was referring to the position of order manager.

18504. Q. That it would make some difference if you only had to appoint him as deputy? A. I would not appoint a deputy who had not seen gas.

18505. Q. Although he showed you he understood thoroughly the way of looking for it? A. He could only understand it by what he read, but if you put a lamp into his hands, and let him test for gas, it would be a different matter. I will give you an example. One candidate—I am not giving any name—passed a splendid written examination. It was like a test-book. In the oral examination, we asked him how he would test for gas, and he said, "Oh, yes, I would go in with my flame, and if I saw gas I would match it back sharp again"; of course the only worst thing he could do.

18506. Q. Do you know that Mr. Jonathan May teaches that? A. No.

18507. Q. That was the practice years ago, was it not? A. No, but they did worse than that. I remember the time when they used to test for gas with a light.

18508. Q. They used to go in with a long stick with light at the end of it, and put it up to the roof, whilst they were lying on the ground themselves? A. Well, I have seen men test for gas with a candle.

18509. Mr. Justice. Q. When you examine candidates do you also examine them with it? A. Oh, yes, we always look about that. I may say that we get good practical men, who can answer all oral questions very well, but who cannot answer a written examination.

18510. Q. Then you are a certain amount of convenience when referring to the conduct of an examination? A. Yes.

18511. Mr. Wade. Q. Did you see the narrow opinion of Mr. No. 100 made? A. I saw most of that.

18512. Q. You have been told that there were two doors, one across the 4th Right, and another across the entrance? A. Yes.

18513. Q. They came from in the open road, one north and one south. What do you think displaced them—was it down from the fall? A. That is not my opinion. (Exhibit No. 39) looks like a division of the force. There may have been a division of the force at that point.

18514. Q. What do you think drove them down out? A. If there were no lights inside the narrow doors, of course the force must have blown them out.

18515. Q. Would it not say down to do that? A. No, not more than a fall would do. Falls blow down out very often.

18516. Q. Many people say it? A. Not right away.

18517. Q. A hundred yards away? A. Quite 100 yards away. Gases do not get up so slight that it would not take much down to do that. No doubt there was force there.

18518. Q. Suppose the narrow light was at the 4th left, 100 yards away, do you not think that the displacement of the air would put it out before the gas got to it? A. It would depend on the fall. There may have been a big fall which would put out the light.

Phases—C. Davis, 19 March, 1905

20522. Q The force that displaced the camera down would be the first force? A I would not go into that.
 20523. Q These would be the first things to go? A I could not go into that question, unless I assumed the place.
 20524. Q You cannot say how the gas would light? A No. I prefer not to theorize, unless I saw the place myself.
 20525. Mr. Hendon: This is the relevant place by Mr. Rogers—
 Q The I take it then, Mr. Rogers, that you have had no practical experience of gas? A Oh, yes. I have had some practical experience out of gas.
 Q Where did you get it? A Well, I have only seen gas once in a safety-lamp.
 Q Where did you get your practical experience of gas? A At Kentucky.
 Q At Kentucky? A Yes.
 Q When? A Well, I found gas there about a month ago—a small quantity of gas.
 Q A month ago? A No, it was not a month ago, it was about the 1st of last month. That is about the first gas I have actually seen in the safety-lamp.
 Q And is that your practical experience of gas? A Oh, well, that is all you require, I think.
 Q Well, is it? A That is all.
 Would you regard that person as a fit person to put as a deputy? A No.
 20526. Mr. Wash: He also says that he saw gas after the firing of a shot.

DUNCAN McKEACHIE, previously sworn, was further examined, as under—

Re-examined by Mr. Wash—

20527. Q Did you, on the 4th Night, just after, on the 4th August, find any signs of fire-damp in the presence of Mr. Hendon? A No.
 20528. Q Did you at any time, either in the presence of Mr. Hendon or in his absence, find any signs of fire-damp in that shaft? A Yes, whenever—not even a trace of it.
 20529. Q Now, can you tell me then—where it was you did encounter with a lamp for fire-damp, was it on the 4th? A There was one examination on the 4th, and another on the 5th. On the Monday, Tuesday, and Thursday, I am mixed there.
 20530. Q That is on the 4th, 5th, and 11th? A Yes.
 20531. Q Were you with Mr. Hendon? A Mr. Hendon was with us on the Monday night. I am not sure whether he was with us on the Thursday, or not. I know he was with us on Monday. I remember calling him back, both here and Mr. Atkinson.
 20532. Q Who was with you? A Dr. Robertson and his party. The two parties met at this place. The Dr. stopped me, to speak to me. I said, "I will go after the party and ask them to come back." Mr. Hendon and Mr. Atkinson were the two that came back. There was some conversation about the direction of force. We attempted to go on, and we lost our lights.
 20533. Mr. Hendon: Q Who went in? A Dr. Robertson, Mr. Hendon, and I am not sure whether Mr. Atkinson was one of the party. Dr. Robertson, Mr. Hendon, and myself, I know of. I believe there was a fourth person. I am not sure whether it was Mr. Atkinson; I do not remember.
 20534. Mr. Wash: Q You lost your lights and went back again. Did you make a test then? A We lost our ordinary oil light, and I burned on the hydrogen flame. I was able to keep that gauge the presence of the carbonic acid gas.
 20535. Q Do you remember whether Mr. Atkinson was there after you came from the gas? A Yes. I remember seeing him after I came back. It was at the moment of the travelling road. They were all sliding down. After a short conversation Mr. Hendon and Mr. Atkinson went out. I stopped with Dr. Robertson's party.
 20536. Q You remember getting a telegram the other day? A Yes, one day last week.
 20537. Q Did you ever hear, before that, that you were supposed to have found gas on the 4th Night? A No, that was the first I heard of it. It was a surprise to me to get the message. I could not understand it just at the time.

Examined by Mr. Bruce Smith—

20538. Q When did you first hear that Mr. Hendon had said that he found gas? A I never heard that Mr. Hendon said so.
 20539. Q Did you get a telegram? A Yes.
 20540. Q When did you hear that Mr. Hendon had said that, but that now he says that Mr. Atkinson was not there when he came out? A I have heard nothing whatever but that Mr. Hendon made a statement that he found gas.
 20541. Q At what time did you hear that behind withdrawn his statement? A I do not quite understand you.
 20542. Q I want to know when you first heard it? A I did not hear that Mr. Hendon had withdrawn any statement.
 20543. Q Did you take any notes when you were on that top? A On you were on the Monday?
 20544. Q Yes? A No.
 20545. Q Did you take any notes at all? A Yes.
 20546. Q In a note-book? A Yes.
 20547. Q Where is it? A In my pocket.
 20548. Q Give it to me? A I want to explain about Monday's notes. In going in, to get along quickly, the question was asked, will we all look. Mr. Atkinson said, "You call out, and we will take it down, and you will get a copy." I handed my book to Mr. Atkinson, and my Monday's notes are in Mr. Atkinson's writing.
 20549. Mr. Hendon: Q Did Mr. Atkinson take notes? A Oh, yes, all the way through.
 20550. Q Have you no notes at all beyond those Mr. Atkinson took? A No.
 20551. Q Did Mr. Hendon take notes? A A few.
 20552. Mr. Bruce Smith: Q You took no notes at all on the Monday? A No notes on the Monday at all.
 20553. Q You were in—how many times? A On the Monday.
 20554. Q Yes?
 20555. Q Mr. Hendon went on the gas edge? A Not in my presence.
 20556. Q You do not know that he went up there? A No.

- 19327 Q Are you prepared to say that he did not go up the goal and hold it for even a gas? A No.
- 19328 Mr. Hester [Q] Might it not have been on some other occasion? [No answer.]
- 19329 Mr. Hester [Q] Do you recollect whether you or Mr. Hamble had a hydrogen flame? A We both used it. I know that.
- 19330 Q Where did you use it? A I was standing on the floor close to the edge of the fall.
- 19331 Q You went up the stairs? A No.
- 19332 Q Did you go up with Mr. Hamble? A No.
- 19333 Q Did he go up? A I cannot say. I did not see him go up.
- 19334 Q What did you say about finding black damp? A I said I put out lamps out.
- 19335 Q Did you afterwards try with the hydrogen lamp? A We had to take the hydrogen lamp.
- 19336 Q Did you have any trouble with the black damp? A No more than putting our lights out.
- 19337 Q After that, did you start your hydrogen lamp? A No, presumably. There was no effect on the hydrogen flame. That flame will live in a higher percentage of black damp than an ordinary lamp.
- 19338 Mr. Hester [Q] Is that the only occasion on which you went in with that lamp? A I only got to the edge of the goal with the hydrogen lamp. The only flame we could get near with was the hydrogen flame.
- 19339 Q Was there not some other occasion on which Mr. Hamble went to the goal with you, and when he went up there as well as you? A I never went on to the fall; for the simple reason that you could not do it. The hydrogen lamp is so weak in illuminating power that you could not go on top of fall with it.
- 19340 Q Do you remember that Mr. Adamson had the electric light? A On the Monday.
- 19341 Q Did he throw the light up to try and illuminate the fall for you? A Yes. We did not try to get up at that time.
- 19342 Mr. Hester [Q] Did you go up at all? A Yes, on the Thursday.
- 19343 Q With Mr. Hamble? A I do not remember the companion of the party. I would not say that he was there, or was not there.
- 19344 Mr. Hester [Q] You will not undertake to say that Mr. Hamble did not go up on the goal? A He did not go up in my presence. It must have been when I was not there.
- 19345 Mr. Hester [Q] Do you remember being in the mine on the 25th of August? A Yes.
- 19346 Q Do you recollect Mr. Hamble going up there? A Yes, that was when the conversation took place as to a trap.
- 19347 Q Do you recollect whether anything was said about finding gas with a hydrogen lamp? A No, in my hearing.
- 19348 Q Were you with us then? A No, not up at all.
- 19349 Q At all events you did not have any remark made referring to the finding of gas? A No, I never heard that such a thing was found there.
- 19350 Mr. Hester [Q] You were there on the 24th? A Yes.
- 19351 Q You were there with Mr. Adamson on the 24th? A Yes.
- 19352 Q And you were there again on the 24th? A Yes, coming away excepting the Wednesday.
- 19353 Q On the 24th those present were Messrs. Hamble, Mellesham, Rogers, Barr, and Eustice? A Yes.
- 19354 Q I understand you to say that you will not undertake to swear that Hamble did not go up on the goal by himself, but that you did not go up? A No, I was not up there at all. I took the roofing against the roof.
- 19355 Q Was he with you? A Yes, on the Monday night.
- 19356 Q He was with you on the Monday night when you went to the goal edge and held up the lamp? A Yes.
- 19357 Q You formed the opinion that there was no gas? A There was nothing to be seen with the hydrogen flame.
- 19358 Q Did you ever use the hydrogen flame before time? A Yes.
- 19359 Q Before this time? A Yes.
- 19360 Q Often? A Yes, almost every week for years.
- 19361 Q You consider you found no gas? A Not even a trace.
- 19362 Q You took no notes on the Monday at all? A I have explained the reason why.
- 19363 Q You took them on other days? A Yes.
- 19364 Q Are you sure that the whole of the party was with you when you went up to the edge of the goal? A I have very few more than four—Mr. Hamble, Mr. Robertson, and myself, and I believe the fourth was Mr. Adamson.
- 19365 Q Did the other members of the party remain back? A We four went up to the goal together. The other members of the party remained back. I remember Dr. Robertson being in front. He tried to screw his light up, and it went out, and I put up hydrogen flame on it.
- 19366 Q Did you and Mr. Hamble remain together to observe the gas? A I remember taking my lamp and reaching it down against the roof, and I remember that the atmosphere was heavy.
- 19367 Q Did you call out anything, or did Mr. Hamble make any remark about it? A All I said was that there was nothing there—that there was no gas there. I thought at the time the others were behind me.
- 19368 Q Was Mr. Hamble observing the lamp at your back? A No, I cannot say, but I know that he came back from the fall with me.
- 19369 Q You have no recollection of Mr. Hamble mentioning gas at all? A No, and I believe my hydrogen lamp was the only one there.
- 19370 Q If you held a lamp, and if Mr. Hamble was observing it, it would be competent for him to read it? A You must get the hydrogen lamp close to your eyes to read it. You cannot read it if you hold it far away. I could it as close to my eye as I could.
- 19371 Q It would be competent for him to see it as well as yourself? A I think, if he had seen it, there would have been some remark passed between us. If he was of my back, he could not see it.
- 19372 Q If he had seen it, you held up the lamp, he observed the reading, in that way? A In that way.
- 19373 Q Would he not be able to look over your shoulder? A I do not think that he could tell from those whether there was 1 per cent. of gas or none.

Witness—P. McLELLAN, 12 March, 1903.

20004 Mr. Atkinson. Q You have seen two observers look at a lamp together? A Yes, but no man could observe it without my knowing that he was there.

20005 Q That is what Mr. Hamilton stated in paragraph 27823 of the short-hand written notes.—P Q Were you with Mr. McLection? A I was. I lay alongside of him. We laid on them the stress. I lay alongside of him, and watched the lamp, and saw just as well as he would be able to see it. A That was on the Monday night. The number of [long drawn out] refers to it.

20006 Q He says here [now] leaning against the steam? A I remember looking on the side of the roof. I went down on my knees on the steam, and viewed as the hydrogen flame, and took a reading. I do not remember Mr. Hamilton reading it.

20007 Mr. Atkinson. Q If black-damp was there, you would get up as high as you could? A Yes, but it was not so strong as that.

20008 Q Your object would be to get up as high as you could out of the black-damp. Did you not go up the steam? A No, the light was so dull that we could not see the way to get up there.

20009 Mr. Atkinson. Q I thought you said that Mr. Atkinson was there? A He was, but went away. He had an electric lamp.

20010 Q There was an electric light there? A Not when I was taking the reading; however, if it had been there then, I could not have taken the reading.

20011 Q The two lights would have interfered with each other? A It would have taken away the light from the hydrogen flame altogether. You can only read it in the dark.

20012 Mr. Atkinson. Q Did not Mr. Atkinson leave you when you went to the roof? A I never went above the roof. I remember watching the roof with my hydrogen lamp, and had to alter its position of that.

[At 11.10 p.m. the Commission adjourned until 10 o'clock the following morning.]

THURSDAY, 19 MARCH, 1903, 10 a.m.

[The Commission met at the No. 3 District Court, King's Cross, Sydney.]

Present.—

C. E. R. MURRAY, Esq., D.C.J. (PRESIDENT).

D. A. W. ROBERTSON, Esq., COMMISSIONER.

D. WILSON, Esq., COMMISSIONER.

Mr. Bruce Smith, Barrister-at-Law, instructed by Mr. Wood, Crown Solicitor's Office, appeared on behalf of the Crown.

Mr. A. A. Atkinson, Chief Inspector of Coalmines, assisted Mr. Bruce Smith.

Mr. C. G. Wade, Barrister-at-Law, instructed by Messrs. Cuthrie & Barry, Solicitors, was present on behalf of the Mount Kembla Coal and Oil Company (Proprietors of the Mount Kembla Mine).

[Mr. J. Gault, Secretary to the Commission, was present to take shorthand notes of the evidence and proceedings.]

[The witness mentioned that he had received from the Government Astronomer particulars of the Barometrical Readings at Wollongong daily from the 1st of July to the 31st of August, 1901, also the mean Barometrical Pressure at Wollongong for the month of July for the twenty-two years prior to 1901. The latter was put on and marked Exhibit No. 41. For copy, see Appendix.]

Mr. F. J. BROWNE was sworn, and examined as under—

[The witness was called at the request of Mr. Lynght, and was examined in chief by Mr. Bruce Smith on his behalf, Mr. Lynght was absent.]

Examination in chief by Mr. Bruce Smith.—

20013 Q What is your name? A Patrick James Browne.

20014 Q And you are a clerk weighman at Mount Kembla Colliery? A Yes.

20015 Q Where were you on the day of the disaster? A I was in the weigh cabin.

20016 Q That is very close to the mouth of the tunnel, is it not? A Yes, about 20 or 25 yards from the mouth.

20017 Q And there is an engine-house, I think, between you, where you sit, and the mouth of the tunnel? A Yes.

20018 Q And as you come out of the tunnel you are right into this engine-house, do you not? A Yes. Well, I would not say. I have not been coming out of the tunnel.

20019 Q Coming out of the tunnel, you would go right into the engine-house? A Yes, you would.

20020 Q And your office, where you sit? A Yes; just after you come to the engine-hall—the engine is above the road—you would come to the weigh office.

20021 Q You remember the day, I suppose, and the hour. I do not mean to name it, but you remember the occasion? A Yes.

20022 Q What was the first indication you had that anything had gone wrong? A The first that I knew that anything was wrong was that I was in my face down in the floor.

20023 Q Did you see anything before you were thrown on your back? A No.

20024 Q What were you doing at the moment? A I was half sitting and half standing, leaning on the desk, partly looking out of the window, but I was looking down towards the men. That is the last I remember.

20025 Q The back of your head would be towards the tunnel? A Yes.

20026 Q The tunnel looked not towards the men? A Yes.

20027 Q Had you any papers in your hand? A No, nothing but the pencil.

20028 Q What happened? A The first that I knew was that I was—[interrupted].

20029 Q You were thrown on the floor; you did not see much there? A I was on the floor, and I heard just like some queer noise.

20030.

19122. Q What do you mean by a queer noise—a whistle? A No; it was just the same as if you put something in my ears. I could not say for a certainty whether it was myself or the man with me that spoke first, but I remember either him or my saying, "We had better get out of this!" and "What is wrong?"

19123. Q Did you see anything? A Yes, I saw him.

19124. A. *Anderson*. Q I think you said a moment ago that you saw nothing? A Before. This would be the chance. The first thing I knew was that I was in my face, but I did not notice that so long as I was in the time I was standing at my desk like this [imitating]—the next I knew was that I was in the face.

19125. A. *Mr. Brown*. Q You pulled yourself up as quickly as you could? A Yes. I got up like on the deck, and got knocked down.

19126. A. *Mr. Brown*. Q Where did you see the first? A From the tunnel it came through the window. The window of the wagon was just in front of me, and there is another one in the opposite corner.

19127. Q As you sat at your desk the tunnel is in in your left? A Yes.

19128. Q Anything coming out of the tunnel would come right across your face? A Yes.

19129. Q Two windows look out on the ship coming in to be caught? A Yes, on the right bridge.

19130. Q And then you got up,—which way did you look? A I looked to get out.

19131. Q Which way did you look? A I looked to the right.

19132. Q You looked to the west? A Yes.

19133. Q Where did you see the flame? A Say that was the window there [pointing to a window in the front]—the light came something resembles the Court—the flame came from this window to that window, and it came on to my left hand, and under the desk, and out over me, and over Wilson.

19134. Q When you heard it all? A Yes, I was there.

19135. Q Where were you then? A I had all the hair [point] off the side [the left side] of my head; and I got toward here [indicating the lower part of the arm] and right up my arm just the other way.

19136. Q How did it hurt you,—when was the effect upon the skin? A The skin was pulled off my arm when I got out of the place.

19137. Q And your hair was singed? A Yes, and everything on the side of my head was all burnt off, and this [indicating the monocular] was burnt off.

19138. A. *Mr. Brown*. Q By "this" you mean the left side of your monocular? A Yes, and my eyebrows.

19139. Q Is burned your eyes? A I got a few hairs on the face from the glass.

19140. Q Is burned your eyes,—it did not hurt your eyes? A No.

19141. A. *Mr. Brown*. Q Of course, you cannot tell us how long it was afterwards—how many seconds, or anything of that sort? A No.

19142. Q When you fell down, did you see any flame? A No, when I started to get up again.

19143. Q It was not till you got up and you were looking around that you felt the flame and saw it, you say? A Yes, in front the desk I was looking on.

19144. Q What was the sheet made of? A Paper.

19145. Q And you were writing on that, were you? A Yes.

19146. Q And you say it burnt it? A Yes.

19147. Q What did it do to it? A When I went back to look for it, there was only a little piece of it, not half as much as the book [the Court Book], when the glass fell on it, that I could find. I could not find any ink on it.

19148. Q What part of it was burnt? A All was burnt except the little square.

19149. Q And the glass had fallen on it? A Yes.

19150. Q Was that the sheet you were writing the witness on? A Yes.

19151. Q Then you lost a number of your witness? A Yes, but I got them from the Company's sheet afterwards.

19152. Q Where was the other man? A Sitting to the right of me.

19153. Q Who was he? A Wilson.

19154. A. *Mr. Brown*. Q You were sitting at the desk next to the tunnel mouth? A Yes.

19155. A. *Mr. Brown*. Q And he was sitting alongside of you? A Yes.

19156. Q You were sitting here, and he was outside of you? A Yes.

19157. Q What because of him when you fell down? A He was down too, the same as I was.

19158. Q Then you fell this way, outside, towards the corner? A I could not say that. We were both on the floor in front of the desk.

19159. Q When you knocked down; as did you think? A No, I did not think, I do not think. I do not think I had time.

19160. Q What did you do after that? A Wilson got out before me. I got the door half open, and when I forced the door open Wilson got out. I was holding it open. The door was jammed at the bottom, and when I forced it open Wilson got out, and he went away. I got partly out, but I could not get this leg out [before-up to his wonder leg]. I got partly out, and I could not get over the debris, and had to get back again.

19161. Q Was that before you lost your leg, or after? A I lost my leg a long time ago.

19162. Q What did you do? A I got back again; and then I got out. When I got out, the tin and iron were falling all over.

19163. Q The building was twisting about? A Yes, all the doors of iron.

19164. Q Did you see anything of the engineer, Powell? A He was the first man I saw when I came out.

19165. Q What did you do? A I said "Is that you Powell", and he said "Yes." I could not recognize him, I did not know him at first.

19166. Q Why could not you recognize him? A He had no hair on his head or face.

19167. Q Had he a beard before that? A He had a comb over before that.

19168. Q Did you get close to him? A I went close up to him, and said "Is that you Powell", and he said "Yes." And just a few yards from him, on the top of the bank, a few feet from the edge of the bank, Clark was standing, and I went over to Clark, and he was all shaking.

19169. Q Where had he been? A I could not say. He was just down below me towards the top, from where I was.

Prison.—P. J. Browder, 10 North, 1895.

29202. Q What was he? A He generally calls the members in the neighborhood, but he was not calling at this time.
29203. Q Everett was afterwards in the Hospital? A Yes, he was in the Hospital.
29204. Q For some time? A Yes.
29205. Q Was he standing up when you saw him? A Yes.
29206. Q Mr. Eakin? Q How far was he then from his regular position at the register house? A He was half way between the Company's office and the neighborhood, just where the old watch stands.
29207. Q That would be about 10 yards, probably? A Yes, 10 yards.
29208. Q Mr. Everett heard? Q He was petrified, really, from the fire by the office? A No, he was on the outside of where I was.
29209. Q Mr. Robertson? Q Of whom are you speaking now? A I told to Farrell "Is that you, Teddy?" and he said "Yes!", and put a few yards from him Clark was standing, all of a shake, on the top of the bank he was within a few feet of being over the bank.
29210. Q Was it that way between the office and the watch-stand? A Farrell.
29211. Q Mr. Eakin? Q Had he tumbled down there? A I do not know.
29212. Q Would he have had time to get out of the place? I could not get out very well.
29213. A Yes, because it took me a lot of time to get out of the place.
29214. Q Mr. Everett? Q What do you say was the position and the condition of Clark? A I went over to Clark as soon as I saw him, and I caught him by the arm, and said "How are you doing, Jack?" or "Is this you, Jack?" and he did not answer, and I caught him by the arm, and where I caught him all the time jerked off.
29215. Q Had he his arm raised? A Yes.
29216. Q The doors banged up? and the skin peeled off when you got hold of him? A Yes.
29217. Q Was he in the Hospital afterwards? A No, he was treated at home by a private nurse.
29218. Q Tell me any other men that you saw that you considered were hurt? A Bonds, or outside, the same!
29219. Q Did you go in? A No.
29220. Q Then outside? A I saw Perry Stone, young Richards, and young Nelson.
29221. Q Were they alive? A Richards and Stone were alive.
29222. Q Were they hurt? A Yes.
29223. Q What were the appearances of their hands? A I do not think I could describe them to you. Marshall's was very nearly off him, and there was skin hanging off him 4 or 5 inches long.
29224. Q And what color was the skin? A It was black.
29225. Q Tom hanging off in strips? A Yes.
29226. Q And what about his hair? A His hair was pretty well all burnt off.
29227. Q Had he lost a hand? A No, he was only a leg. They were two legs.
29228. Q Was Richards hurt? A Yes.
29229. Q What did you see about him? A I saw his hair was all burnt off him, and his clothes were pretty well burnt.
29230. Q There had all been at the tunnel mouth, single? A Yes.
29231. Q And they were browned, discolored? A Oh yes, they were as black as anything.
29232. Q Have you ever had any experience of gas in that mine, have you ever worked in that mine and got coal? A Yes.
29233. Q Before you were workman? A Yes.
29234. Q How long ago is that? A I have not worked now for the last two or three years.
29235. Q How long ago is it since you were getting coal? A It is about three years since I worked in the coal.
29236. Q What part of the mine was you in? A In No. 1, when I last worked there.
29237. Q In No. 1 Right? A The 4th Right.
29238. Q The 4th Right in the No. 1? A Yes.
29239. Q What experience did you have of gas there? A I never saw gas in the 4th Right.
29240. Q Where did you have had experience of gas, you and you had had some experience of gas in the mine? A I do not know that I did see it.
29241. Q Then you have not seen gas in the mine? A Yes, I saw gas in Mouth Kambie.
29242. Q How long ago? A A good few years ago. There is very quantity of gas in Kambie.
29243. Q In what part of the mine? A In the shaft, in No. 4 in the shaft descent.
29244. Q In what way did it show itself? A It lit it. I went into the place, and it lit before I got within 5 or 10 yards of the place.
29245. Q Was that after you fired a shot, or when you went in in the morning? A No, the first thing in the morning.
29246. Q Where did you find it—up in the roof? A No, I had my light in my hand when it lit. There was some coal shovelled back, and I was going over this coal.
29247. Q Was it a large blast? A Pretty large.
29248. Q How far were you from the blast? A 5 or 10 yards.
29249. Q Did it knock you over at all? A Yes.
29250. Q Upset you? A Yes.
29251. Q Did it burn you? A It burnt pretty well all the hair off my head. I had a blue band on; and it made it pretty white.
29252. Q Was was the deputy of that district? A David Evans.
29253. Q Did you tell him? A Yes. I went word, and he came and happened the place before I went in to work.
29254. Q Were you able to go on with your work? Yes.
29255. Q You went word to him, and he came in? A Yes.
29256. Q Did you describe it to him? A Yes.
29257. Q And did you show him the distance from the blast? A Yes, and showed him where I got my hair burnt, and the burnt hand.
29258. Q Have you any idea what year it was? A Yes or twelve years ago.

- 18717 Mr. Robinson: You say this is ten or twelve years ago. From your previous evidence I should not have been more than three years ago. You and you were two or three years in the mine? *A. No.*
- 18718 Mr. Robinson: I think you said you had been two or three years in the mine.
- 18719 Mr. Smith: Q. I think it is a mistake. [By the request of Mr. Robinson, Mr. Smith then read from the statement made by the witness Robinson upon that point.]
- 18720 Mr. David Smith: Q. How many years did you work in the mine before you became clerk-weighman? *A. About fourteen or fifteen years, all and so. I would go away for a time.*
- 18721 Q. You are in the employ of the Company now? *A. No, not now.*
- 18722 Q. But you are clerk-weighman at the mine now? *A. Yes.*
- 18723 Q. For the mine? *A. Yes.*
- 18724 Q. And you are paid by them? *A. Yes.*

Continued examination by Mr. Wade:—

- 18725 Q. Do you say the side of your overcoat was burnt right off? *A. Yes, it was burnt, short, just about like that [indicating].*
- 18726 Q. It was mostly off? *A. Yes.*
- 18727 Q. And do you say the hair was burnt off your head? *A. Yes, on the side.*
- 18728 Q. Which side? *A. The left side.*
- 18729 Q. Do you mean burnt right off, burnt up close? *A. I will not say it was burnt altogether off, it was all shaved up.*
- 18730 Q. Do you say the hair was burnt off your head on the left-hand side? *A. I do not think except when it was I say it was burnt completely off, I say it was burnt.*
- 18731 Q. You said the supervisor before that it was "all burnt off." I want to know whether you mean that? *A. I did not mean to say it was burnt completely off my head, it was all shaved up.*
- 18732 Mr. Moore: Q. Had it been about the same length as it is now? *A. Yes. I went and got it cut as soon as I got to a barber.*
- 18733 Q. But, before it was burnt, was it about the same length as it is now? *A. It might not have been quite so long. It is longer now than I generally wear it.*
- 18734 Mr. Wade: Q. Do you say your shoe was burnt? *A. Yes.*
- 18735 Q. Did it blister you? *A. Yes.*
- 18736 Q. Where? *A. On my arm here.*
- 18737 Q. Not on the face? *A. No.*
- 18738 Q. Do you remember walking down the mine within an hour of the occurrence? *A. Yes.*
- 18739 Q. And meeting several people? *A. Yes.*
- 18740 Q. Do you remember seeing me amongst these people? *A. No. I saw you when I was going up again, I had been here.*
- 18741 Q. Not going down the mine? *A. No. I had been up, and had a walk and a change, and I came up. My mine came up the incline, and I came up after. You passed me near the end of the incline, on the way up.*
- 18742 Q. Can you tell me who these people were you met? *A. I can tell you some of them, but I cannot tell you all. I met Robinson, and Wilson. I do not know anybody else that I took particular notice of, but I know I was talking to them two.*
- 18743 Q. Who is Robinson? *A. John Robinson.*
- 18744 Q. What is he? *A. Foreman at Mount Kemble.*
- 18745 Q. What is Wilson? *A. He is a farmer near Knoxville. They both had sons in the mine. That is how I came to be speaking to them, because they stopped to ask me what was wrong, and how things were.*
- 18746 Q. Was Wilson, the foreman, burnt? *A. Yes, his hair was burnt.*
- 18747 Q. The same as yours. Now, he, as understood, the first you knew was that you were knocked down on the floor of the weigh-room? *A. Yes, the first I knew was that I was on the floor.*
- 18748 Q. Is that the time the door got jammed? *A. No, it was not jammed when I was on the floor.*
- 18749 Q. You say the door got jammed, and you opened it? *A. Yes.*
- 18750 Q. Is not the time that you were knocked down the time when the door was jammed? *A. The firing broke made the other men have got blown near our heads, and the big stones came as well down over us, and they were against the bottom of the door.*
- 18751 Q. Was not the weight then partly turned over? *A. A bit.*
- 18752 Q. And was not that the time when the door got jammed? *A. Yes.*
- 18753 Q. And you were some time getting up? *A. It would certainly take me some time to get up.*
- 18754 Q. Well, I want to know but you say you got up? *A. No, when I was on the floor. The mine was coming over my head and under the door.*
- 18755 Mr. Moore: Q. Just the door being shut before that happened? *A. No, I think the door was standing half open when it happened. We generally leave it standing half open for the men to come in. The window is straight opposite the machine, and the door is straight opposite to the tank, and we have it open for the sake of the air.*
- 18756 Q. Does it open inwards or outwards? *A. Inwards.*
- 18757 Mr. Robinson: Q. Is the door next to the tunnel mouth? *A. Yes, it is up in the side the tunnel mouth.*
- 18758 Mr. Wade: Q. Is on the opposite side of the mine to the tunnel mouth?
- 18759 Mr. Robinson: Q. Is it across the tunnel mouth or the screen? *A. No, it opens on to the back, next to the Company's office.*
- 18760 Q. It is facing to the back? *A. Yes, the door is at the back there. As you look out of the window of the Company's office, the door of the weigh-room is straight opposite, near the tank.*
- 18761 Mr. Wade: Q. Is the window from which you would see the slope opposite the door? *A. Yes, I would like to explain that.*
- 18762 Mr. Moore: Q. Can you draw a sketch of it? *A. Yes.*
- 18763 [Witness then drew a pencil sketch, to explain that part of his evidence.]
- 18764 Mr. Moore: Q. Were both windows broken? *A. Yes, there was not a pane left in either window.*
- 18765 Q. Were the windows blown right out or right in? *A. Blown right in. This will see any amount of glass sticking in the boards, where it was blown into them over our heads.*

Transcript of J. J. Brown, 10 March, 1900.

- 25718 Mr. Wade: Q I suppose the window was shut just before you were launched over? A No; the window is three half windows, and the middle window slips backwards and forwards.
- 25719 Q Was it open? A Yes; not right open. We open it, say, just according to how the wind is blowing.
- 25720 Q Was it open that day at all? A Yes, it was open.
- 25721 Q Did you see any dark flames out just before you were launched over? A No, I saw nothing at all.
- 25722 Q You saw nothing at all? A No, I did not know anything had happened, until, the first thing I knew, I was on the floor.
- 25723 Q Now, with regard to Perrell, do you say he had an hair on his head or on his face either? A Well, it was burnt off, all his ——— [Interupted]
- 25724 Q Do you mean to say he had an hair on his head or face? A No; it was burnt off. It was just a mop over his head like a bush over his head. It was like burnt on, sticking to his scalp.
- 25725 Q You mean the hair had all gone? A There may have been a little sticking to the skull under; I did not see him after.
- 25726 Q Was he wearing a cap when you saw him? A No, he had nothing on his head at all.
- 25727 Q Did you hear a blowing noise? A Yes, I heard a blowing noise after I got up.
- 25728 Mr. Brown: Q Did you find out what caused it? A Yes, I did. I made it my business to go and see. As far as I know, it was the steam, like, up to the engine shaft.
- 25729 Q Blowing off from where? A From the connection between the boiler and the engine.
- 25730 Q Did the pipe blow down away? A I do not know what had been blown away, but I know the steam was blowing up between where the engine was and where the boiler were, and I noticed somebody to go and see about it after I came out. Somebody came across to me, and said to me, "The boiler's heated", and I said, "It's not the boiler heated". That was the man that was doing the boiler. He came back to me, and he said, "It is not the boiler, it is the connection between Perrell and me." Well, between the time that he had been speaking to me first and the time that he came back, I had been up in the travelling road tunnel, and, when I went to go up to the travelling road tunnel, after leaving Clark, just after I came out of the cabin, I took Clark to where he was safe, and set him down, and when I went round a few yards, all the cables and that were coming out of the travelling road, and blowing everything, papers, and leaves, to the back down below, and he came to me and said, "We met the boiler, it is the connection", and I said, "Yes, I know the connection is heated".
- 25731 Q What way was the steam blowing? A Directly towards the tunnel mouth. That was where I went back, after I came out of the cabin, when I went back again the steam was blowing like that, partly in towards the cabin.
- 25732 Mr. Wade: Q Those three seemed to be a current of air going towards the tunnel at that time.
- 25733 Mr. Brown: Q I do not mean the direction in which the air was blowing the steam, but which way was the spirit of the steam? A It was not straight towards the tunnel mouth, but in an angle across the tunnel mouth.
- 25734 Q Were the pipe pointing that way? A, I did not take notice.
- 25735 Q It would be coming from some pipe? A Yes. I said to the man that was doing, when he came across to me after I was talking to him the second time, "You had better go and see to those boilers, they will burst", and he said, "No, they is at the boiler."
- 25736 Mr. Brown: Q Did not that steam make very much noise? A No, it did not make very much noise. It may have made some noise then, I think, because I was partly deaf for a week or two afterwards; but it was as if you put your fingers in my ears, like that, that is what it put me as much as, like if you are under water and come up, and everything seems to be booming in your ears.
- 25737 Q Usually when steam is blowing off from a boiler you cannot hear much? A No.
- 25738 Q But still you were talking to those people, do you say the steam was not as good as to prevent your talking to those people? A But I was talking to those men out in front of the Company's office.
- 25739 Mr. Brown: Q In that regard the engine? A Yes, just in front of the Company's office.
- 25740 Mr. Wade: Q Now you know there was a big pipe, do you know how many boilers there were? A Three boilers.
- 25741 Q And do they all feed the engine? A Yes, I think they do.
- 25742 Q Was not there a large pipe running from the boiler between to the engine? A No doubt there was, I could not say.
- 25743 Q That would be, you might say, across the top of the tunnel mouth? A Yes, well, it would go from the boiler across to the engine room.
- 25744 Q And it was about 10 or 12 feet high off the ground? A I do not know what height it was, but I think it would be possibly more than that.
- 25745 Q And the pipe was about nearly a foot in diameter? A I could not tell you.
- 25746 Q Somebody said that, Stockman, or otherwise, getting on to a foot? A I could not tell you about the pipe. Possibly I have seen it many a time, but I could not say.
- 25747 Q Was not the whole of the roof of the structure and building three stacked down at the same time as the pipe was fractured, was not the whole thing a wreck when you saw it? A Yes.
- 25748 Q Now, was not the steam rushing out there, when you first saw it, at a tremendous rate? A No, there was not a great deal of steam coming out. I have seen as much coming out many a time when she was blowing off as much I saw there.
- 25749 Q And you say there was no extra noise, and an unusual amount of steam? A I will not say exactly the quantity of steam or noise, for I could not hear very well.
- 25750 Q You say there was no more than you have seen on an ordinary occasion blowing off from one boiler? A Not more than like when the steam escapes.
- 25751 Q When did you first notice your chest, your weight-box, was burnt—after you got up? A After I got out and went to the travelling road tunnel, when I came back again there was a lot of fire in the cabin.
- 25752 Q What do you mean by fire in the cabin? A The things heavily were on fire.
- 25753 Q Burning? A Yes.
- 25754 Q In several places? A They were, in one place.
- 25755 Q Actually burning? A Yes.

22816. Q Where was that? A It was in the corner at the dock, just under where my feet would be.
22817. Mr. Swain. Q What is the average width of the tunnel mouth? A Yes.
22818. Mr. Swain. Q Do you situate underneath the dock? A Yes, just under the dock.
22819. Q I suppose Wilson had a weigh short there, too? A Yes.
22820. Q Was he hurt? A No.
22821. Q He was lying side by side with you? A No, I do not know where he got in.
22822. Q I do not want to know where he got in, but where the disaster occurred he would be alongside you? A Yes, when he went out, not that Wilson, but another Wilson, went in and put the fire out, and damped the place, the sheets and all, after they put the fire out in the stowaways just inside the cabin. In the stowaways there were boxes with things up and packing in them, they were all on fire, and several men went and carried them out and turned them out on shore of you that were outside, and Wilson forced in and put the fire out.
22823. Q What Wilson is that? A William Wilson, blacksmith at Esplanade.
22824. Mr. Swain. Q Was that before you came back to the shore? A No, after I came back from the travelling road.
22825. Mr. Swain. Q Where was this store? A Just immediately behind the weigh cabin. It goes back to the Company's office like to the back there [indicating].
22826. Mr. Swain. Q How far would it be away from the rail? A A couple of feet, I suppose.
22827. Q A couple of feet only? A Yes.
22828. Q Is it not a good deal nearer 4 yards? A No.
22829. Q It was behind your office, was not it? A No, it came back down with my office from the register shed. I will show you on that sketch there.
22830. Q Then it was nearer the register than you were? A Yes. [Water explained the situation on the sketch.]
22831. Wilson. The weigh cabin and the store had all the coal well on the tunnel side. There may have been just a little more, about that much [indicating] where the box with the weights stand on it. I do not think it is more than about 3 feet from the rail, the side of this store.
22832. Mr. Swain. Q What is that wall made of—galvanized iron? A Yes.
22833. Q Where was the opening? A At the back of the weigh cabin.
22834. Q That would be a door? A Yes.
22835. Q Was the door usually shut? A Yes.
22836. Q Was it locked open, this door? A All the iron was blown off, both the top and the sides of it blown all out. It was completely wrecked, and just some of the frames stood.
22837. Q How long had you been working in the 5th Right before you were hurt? A I was working in the 5th Right when I was hurt.
22838. Q Before you were hurt, how long had you been working in that district? A I might be there for three months now, and I might not be back again in the two or three years.
22839. Q I do not want to fight. I want to know how long you were there on and off? A I have no idea, that is more than I can tell you.
22840. Q Were you in there on more than one occasion? A Yes, I drove some of the 4th Right on.
22841. Q Does the heading in the first instance? A It was not driven on headings, it was driven in cut throughs.
22842. Q That was when you first opened the district? A Yes.
22843. Q You mean that they drove the back first, and you helped to drive the cut-throughs of the back? A Yes, and, as far as I know, that formed the 5th Right on.
22844. Q And that formed the heading? A It is either the back or the front heading, I cannot say which it is.
22845. Q But you were working in the 5th Right now when they opened up that district? A No, the 4th Right was about finished when I worked there.
22846. Q Finished? A The back was about finished.
22847. Q That is not finishing the 5th Right? A What is not?
22848. Q You say when you left it was finished, it was not finished till last July. You say that when you got hurt they had just about finished the back in the 5th Right? A No.
22849. Q What do you mean? A I said when I was driving the 5th Right heading the back was all driven up the district, and we drove cut throughs from head to head that formed either the front or back heading of the 4th Right, I am not certain which.
22850. Q When was that? A It was a good while ago.
22851. Q Give us some idea, was it twelve months before you were hurt? A It was more than that.
22852. Q Now, you were actually hurt in October, 1890? A Yes, I think that is the year.
22853. Q And you were working on pillars at that time? A Yes, just started on them.
22854. Q Had you been working on pillars before in the 4th Right? A No.
22855. Q You were never on pillars before? A Not in the 4th Right.
22856. Q And your experience before that in the 5th Right had been in cut throughs or bords? A Yes.
22857. Q And who was your mate at the time you were hurt,—was it not your brother? A Yes.
22858. Q Was he your mate when you worked in the 5th Right on other occasions? A Yes, I believe he was. I am not certain, but I think he was.
22859. Q Did you see any dust on the day of the disaster? A I saw smoke and dust coming out of the travelling road.
22860. Q Did you see any dust at the tunnel running out? A I saw nothing when the thing happened in the main tunnel.
22861. Q You saw no dust in the main tunnel? A No, not that I know.
22862. Mr. Swain. Q Where did you see dust and smoke? A Coming out of the travelling road. That is where I came out of the cabin and came round, after I saw Percival and got hold of Clark and took him to where he was sick and put him down—the smoke and that was coming out of the travelling road.
22863. Q That is smoke and dust? A Yes.
22864. Q Do you mean to say there was no dust and smoke coming out of the tunnel mouth then? A No. As far as I know it was not coming out of the tunnel mouth, although the tunnel mouth had pretty well fallen in, as I saw afterwards. When I came out of my cabin, everything was quiet, but when I came to the travelling road it was burning right and then.

Wheeler—F. J. Brooks, 10 March, 1902

29373 *Mr. Meyer* | Q Pulling out as coming out? A No, just coming out. Well, it was blowing all the old paper and leaves, and everything straight away down into the back of head of it.

29374 Q Then it was pulling out? A Yes, as far as I could see of it, it would very nearly blow a man off his feet, what was coming out of there.

29375 *Mr. Brown Smith* | Q Did you see a lot of paper, and stuff, and dust, blown up? A No, that was picked up as it came out, and when it stopped there were a lot of leaves and things washed back into the tunnel mouth again. Then I went up towards the tunnel (old travelling road tunnel), and I saw Mr. Frost with two big long hair lamps; I asked him where he was going, and he said he was going into the mine, and I took one of the lamps from him. Then he ran back to the road to Johnny Mann, and he took the other one from him, and said to me "What has happened?" and I said "The gas has blown off", and he said "If it has, I will not let him go in with those", and then I went away. I would like to say that the boards on the workmen's are there yet, and the plank-boards are about half way round, on the left-hand side under the deck, where the fire came in that tunnel too, and the boards are torn at half way through.

29376 *Mr. Meyer* | Q I suppose it must be that, that you would have gone back, but you were not? A No. I wanted to go in, and they would not allow me, and the boards are torn at half way through. I was one of the first to offer to go in, and they would not let me.

29377 Q And you have lost your leg, too? A Yes.

Examination by Mr. Biddle —

29378 Q Did you see the bodies that were brought out of the mine? A Yes, I identified a lot of the bodies that were brought out.

29379 Q I suppose you know them all? A Yes, I did know most of them. They could not identify them, and I suppose Biddle came to get and said, "Too many were them going on strike and coming on strike, and you ought to be the last able to identify them", but some of them I could not identify.

29380 Q Did you see any bodies? A Yes.

29381 Q Who were they? A I saw Walter Mervin and his son. I identified them.

29382 Q Any others? A I saw Arthur and son.

29383 Q Any others? A I saw Charles Stafford. I think that is about all I remember. I saw pretty well all the bodies that came out.

29384 Q Did you see young Biddle? A Yes, I saw young Biddle.

29385 Q Was he hurt? A Yes, he seemed to be pretty badly hurt too.

29386 Q And you say that you mentioned him, Mervin and son, Arthur and son, and Charles Stafford, were, in your opinion, hurt? A Yes, badly hurt too. Mervin was my father-in-law, and I was there waiting for him to come out, and I took particular notice. I helped to wash him, and helped to rub him, and he was a man who wore side-locks and a big mustache. When he was brought out he was side-locks and a mustache, and was pretty well clean (at least), and he was a man who wore his hair pretty long, and it was not that long (pulling). I could take it off my head, it was all mixed.

29387 *Mr. Robinson* | Q Did you see Farrell? A No.

29388 Q Or young Mervin? A No.

29389 Q Or Mervin? A No. I may have seen them all. All that were in the register book told me I saw. The youngest got me to come there to identify the bodies as they were brought out, or try to identify them. They could not identify them, so that they had me in his coffin, and he was going to it, and the youngest asked me did I know this man of the name, and I said "Yes", and when they opened the coffin it was not the man at all. They had Arthur, and it was then I saw when they opened the coffin. The youngest asked me did I know that, and I said "Yes", I knew that, because that of the two were off me first. They opened the coffin, and the two were off me first.

29390 *Mr. Brown Smith* | Now Mr. Biddle, who is in charge of the Wallingford Hospital as surgeon, attended to all the men on the day of the disaster, and I would suggest to the Commission that she would be able to give some valuable evidence as to the burning.

Examination by Mr. Robinson :—

29391 Q When you went towards the entrance of the travelling road, was it smoke or dust that you saw? A It was smoke; it was pretty white.

29392 Q White? A It was a smoke like. It was rolling out all in smoke, and twisting right out.

29393 Q And then you say it stopped when you were there? A Yes.

29394 Q Did it stop very suddenly? A Yes, pretty suddenly. Pretty well as soon as it stopped, it dove back, and the leaves and paper that it had blown down the back went up in the tunnel mouth.

29395 Q Did it go back with any force? A With enough force to drive these leaves and paper.

29396 Q Was it something like the usual current? A No, it would go back with more than the usual current of air.

29397 Q But not with any great force? A Not enough to blow a man off his feet, but the leaves and paper that went down came back again. One lot of smoke went straight up in the air, and the other part of the smoke went back into the tunnel mouth. I know that was considerably after, as far as I saw Biddle, after she stopped coming out of the mine tunnel, for, as far as I know, I got out of the mouth when there was no smoke or anything coming out of the mine tunnel.

29398 Q But how long was it from the time you were knocked over until you got to the travelling road? A I could not tell that.

29399 Q Roughly? A, I had just time to get myself up and to get out of the mine, when I did get up, I stopped, I suppose, perhaps, half a minute with Farrell and Clark, and I went straight to the travelling road. I was up in the travelling road before any of the men that were close handy to the mine were there.

29400 Q That would not be more than a few minutes? A I would not take me more than possibly a minute when I got out of the mine as when I got to the shop there.

29401 Q It would take me a minute to walk there? A Not from the entrance to Arthur's shop.

29402 Q But then you had had some conversation with these men? A Yes, I spoke to Farrell and Clark, and I got hold of Clark and put him in the shop where he was safe, and I went straight on. It is possible I might have been up there quicker, but I could not get there, the smoke and that, coming out of the two other roads. It came right down past the pump shop, where they stamp the picks. It was coming down right in the back.

29403.

29030 *Mr. Kinkle* [Q] I suppose you could see rolls of smoke coming out past the pick rack from there? *A* Yes.

29034 *Mr. Moore* [Q] You did not go up the stairs? *A* Yes, afterwards I went right up there from the pick rack. It is only a few yards from the cabin.

29035 *Mr. Kinkle* [Q] About ten yards? *A* It may be a few more yards, but it is only just a few steps more.

29036 *Mr. Wade* [Q] Had the tunnel mouth fallen in there, at the time you were standing by the pick rack? *A* I did not see the tunnel mouth till after. I did not want to look at anything at the tunnel mouth when I got out. I went straight away.

29037 [Q] Was it fallen when you then saw it? *A* Yes.

29038 [Q] How long after being at the pick rack was it? *A* It might have been ten minutes or a quarter of an hour after I was there.

29039 [Q] Did you hear any words of a fall in the interval? *A* No.

(Examination concluded.)

Mr W STAFFORD was sworn, and examined as under:—

29040 (This witness was called at the request of Mr Lynght, and was examined in chief by Mr Bruce Smith on his behalf, as Mr Lynght was absent.)

Examination in chief by Mr Bruce Smith:—

29041 [Q] What is your name? *A* William Stafford.

29042 [Q] I think you had some boys at the Mount Kinkadee Mine on the day of the disaster? *A* Yes.

29043 [Q] You remember the first of July last, when this disaster took place? *A* Yes, I remember that well.

29044 [Q] Where were you? *A* I was working just above it, on a piece of ground, a little garden.

29045 [Q] Up above the mouth of the pit? *A* Yes, just above the pit.

29046 [Q] Your house is up there? *A* Yes.

29047 [Q] And you have a garden round it? *A* Yes.

29048 [Q] And you were working in the garden? *A* I was working in the garden.

29049 [Q] What was the first thing you saw or heard? *A* I heard a great report; and after the report a great flame of fire followed.

29050 [Q] From where? *A* From the tunnel mouth.

29051 [Q] You actually saw the flame come out? *A* I actually saw it.

29052 [Q] How far did it come out? *A* I could not tell you the distance.

29053 [Q] What is the length of this Court now? *A* Well, you, it was fully that long. (About 40 feet.)

29054 [Q] Was it a mere glaze, or—[interceptor]? *A* No, it was a regular flame, and something looked at from it came out.

29055 *Mr. Moore* [Q] What colour was it? *A* Red, a regular flame.

29056 [Q] There is a great difference between a red, and a blue, and a yellow flame? *A* Yes, this was a regular flame, the same as you would light a fire.

29057 [Q] A red or blue or yellow flame? *A* A red flame.

29058 *Mr. Bruce Smith* [Q] The men you would get from a bonfire? *A* Yes.

29059 [Q] A sort of bonfire? *A* Yes, that is it.

29060 [Q] I mean you are quite sure you did not mistake a mere glaze for a flame? *A* No, it was a regular flame.

29061 [Q] You changed my law for it came out? *A* No, of course I was confused at the time.

29062 [Q] You were right even so? *A* Yes.

29063 [Q] And beyond this confusion, this case, did you hear any other noise? *A* Well, all the wood, and timber, and everything, were flying, and the shocks of snow, and it made a terrible noise. Tearing everything before it, of course it would make a terrible noise.

29064 [Q] Was anybody with you at the time? *A* No. I was working in the garden myself.

29065 [Q] Was not your daughter with you? *A* My wife was going away for a bucket of water when she (the noise) started.

29066 [Q] For your garden? *A* No. She was going for a bucket of water, and the pit exploded, and of course I do not know whether she saw the flame, or did not. I could not say. I would not swear.

29067 [Q] You did not talk to her about it? *A* Well, we was down to the pit then, of course, to look after our own.

29068 [Q] You went down and helped to pick up some bodies? *A* No, they were not dead. We picked up Paddy Farrell. He was standing there, and I could not make out what he was.

29069 [Q] Could you recognize Farrell? *A* You could recognize him after you had looked at him for a bit.

29070 [Q] What had been done to him, describe it? *A* He was burnt.

29071 [Q] Did you notice his hair? *A* His hair was singed.

29072 [Q] Did you see your own men there? *A* My own men were all in the pit.

29073 [Q] Did you see them afterwards? *A* The last that came out died!

29074 [Q] Yes? *A* Yes.

29075 [Q] Had you two in the mine? *A* I had three. Two came out alive, and one got killed.

29076 [Q] Was the body of the dead one there? *A* Yes, body.

29077 *Mr. Kinkle* [Q] What was his Christian name? *A* Kennedy.

29078 *Mr. Bruce Smith* [Q] And was his hair singed and burnt off? *A* Yes.

29079 [Q] And how was his skin? *A* The skin, you know, if you touched it like that, would come right off. You could not see it.

29080 [Q] Are the two at work again now? *A* Yes.

29081 [Q] Were they burnt at all? *A* No. They covered the face, and put on.

29082 [Q] Are you a miner? *A* I have been one, but I have knocked off.

From—W. Stedon, 18 March, 1908

Conversations by Mr. Wade —

- 19002 Q How far away is your house? A Well, I could not tell you exactly; I never measured the distance.
- 19003 Q What would you think? A I would say about 180 yards, at the outside.
- 19004 Q Where is that, on the top of the hill? A That is from the top of the hill to the tunnel mouth; at least, from the top of the hill, you know, right over on top of the tunnel mouth, you see.
- 19005 Q Supposing you were coming out of the tunnel itself, would you think the hill to go to your house? A Yes, there is a track that would lead you right up to my house.
- 19006 Q That is on top of the hill? A Yes, just on top of the hill.
- 19007 Q Where in the garden you were working in? A That is close to the house. The road divides the house and the garden. The road goes past my house.
- 19008 Mr. Wade Q Your garden is between the road and the tunnel? A Yes.
- 19009 Mr. Wade Q Where you were working, could you see the tunnel working at the street? A No, you could not see the men working at the street from my place, of course.
- 19010 Q I mean the men on top of the street? A If you just walked over on top of the hill.
- 19011 Q I want you to stand where you were in the garden? A No, of course not.
- 19012 Q Could you see any buildings at all? A Not from where I was working in the garden. Of course the pit was there, and I was here like, on the hill.
- 19013 Q And the hill starts you off from among these buildings? A There is no starting off in it; there is a gentle slope down the hill.
- 19014 Q Whenever the smoke is, from where you were working in the garden that day you could not see any of the buildings? A No, but I could see it all flying away.
- 19015 Q Did you look when you heard the report (bark)—did you look up to see where it was? A Yes, I looked, of course. It would make anyone look, I think.
- 19016 Q And was it after you had looked that you saw the flame? A Yes.
- 19017 Q How long after? A Well, it could not have been—I do not suppose it was a second. It could not have been.
- 19018 Q Where was this flame—was it not beyond the screen that you saw it, or up, straight up in the air? A It came out of the tunnel mouth, straight out like that (indicating).
- 19019 Q But you could not see the tunnel mouth? A I could not see the flame straight out.
- 19020 Q Was it up in the air, or beyond the screen, or where? A It was above the building itself. You see it flew the dead clean away, and the smoking flame was out.
- 19021 Mr. Wade Q Was it towards the top that you saw the flame? A Yes, right straight towards the top.
- 19022 Mr. Wade Q But you could not see the top from where you were? A No.
- 19023 Q Then was the flame beyond that, or above it, or where? A The flame was right in the air like that (indicating), you know. It flames like that and not too many yards, you know. It is only a flash like that. It burst what it had to burn, and then, of course, and then it was all dark. It was dark then, of course. There was no more flame there, but it was all red-hot flying.
- 19024 Mr. Wade Q Was it a bright clear day, or a cloudy day? A I could not properly say. I have lost memory of what it was.
- 19025 Mr. Wade Q It was a bright smoke day, was it not? A I could not say, I could not swear that.
- 19026 Q The sun was shining, was it not—do not you remember that? A Yes, the sun might have been shining a bit.
- 19027 Q Then, how far do you think the flame was from the tunnel mouth at the time you saw it, how many yards most it have been when you saw it? A Which way do you mean?
- 19028 Q You say it went out straight? A The tunnel mouth was here (indicating), and the flame went straight out, I could not say the length of it.
- 19029 Q You did not see the mouth, but you saw it at a certain distance from the mouth? A It must have come out of the mouth.
- 19030 Q Of course, but I want to know where you saw it, at the point where you saw it, how many yards was it then from the tunnel mouth? A I could not say how many yards, and I could not swear it. I will only swear what is the truth, and no more.
- 19031 Q Any way you do not know if your wife saw it or not? A No, I could not say.
- 19032 Q Have not you talked about it with her? A Well, we have had many a talk about it.
- 19033 Q And you do not know now whether she saw this flame or not? A I never put the question to her.
- 19034 Q And the screen told you? A No, she never told me.
- 19035 Q Can you tell me that. What was it you spoke in first about seeing this flame? A Why, it is a common report about there, everyone is talking about it.
- 19036 Q To whom did you speak? A I have spoken to several.
- 19037 Q Did you speak to Mr. Lynght? A Yes, I did.
- 19038 Q When was that, and where? A I could not tell you where it was.
- 19039 Q How long ago? A It might have been five months ago, or four months ago. Mr. Lynght would often meet me in the street, and we would have a talk about other business.
- 19040 Q And you have not spoken about it lately? A Not to my knowledge, not that I know of. I might have, you know.
- 19041 Q Were you at his often lately? A Yes, I was there one day.
- 19042 Q When? A I do not know how long it is now. I went to his house there on some business, but I may have spoken to him that day about it, for all I know, but I could not swear it.
- 19043 Q And you did not go down and see him about this? A Certainly, you saw!
- 19044 Q True? A No, I did not.
- 19045 Mr. Wade Q Do you know a man named Ramsey, living near you? A Yes, we have been old neighbours these years.
- 19046 Q Did you have any conversation with him immediately after this? A Well, neighbours, you know, will have a yarn when they meet.

19002. Q Do you remember speaking to Ramsey, twice, immediately after you saw that? A Immediately after the explosion?

19003. Q Yes? A Certainly.

19004. Q Did he come near to you? A Yes, he ran across to old Harry Griffiths furnace, and to say, "Watch that out right enough, for I saw the flames going up the chimney." [Meaning flames going up the chimney of the old closed waterbury furnace.]

[Witness retired.]

Mr H RAMSEY was sworn, and examined in order—

[This witness was called at the request of Mr Lought, but, in the absence of Mr Lought, was examined instead by Mr Bruce Smith as his behalf.]

Examination related by Mr Bruce Smith—

19005. Q What is your name? A Harry Ramsey.

19006. Q There is a young Harry Ramsey? A George.

19007. Q Where is he? A He is working at the brickwater.

19008. Q What are you? A I have been in the navy some long time ago, but was lately

19009. Q You have retired now? A Yes, I am working on my own farm.

19010. Q How far is your farm from the Mount Kemble Mine? A Well, I judge it is.

19011. Q Are you near Stuffed? A Pretty near here.

19012. Q When are you on a higher level than the mouth of the tunnel? A Some of my property is on the top of the ledge of the materials above the pit.

19013. Q And you and Stuffed are neighbours? A Well, I am not far distant.

19014. Q Do you remember the day of the disaster? A Well, I remember what happened that day, but I could not state all any of those things.

19015. Q I do not want you to remember the date, but you remember the season? A Yes, I do, well.

19016. Q What were you doing? A The first part of the day I was working up timber were to put a frame up.

19017. Q What were you doing about a quarter to 1? A My old woman came up with my dinner between 1 and 2, and she and she would not stop long that day, she would go along and look at a cow that was lying over, the lambs being so hard that we could not keep them alive, and she went across, she and I talking together.

19018. Q Never mind about the cow. What happened? A I am giving you the truth. I can live without Mount Kemble (Company), and I can live without the mines, and I tell you what I saw.

19019. Q What did you see? A I was standing looking above the ledge of the old, just the next to I would be looking down on a few beams from the top of a high rock, when a heavy red flame with a cloud of black smoke shot up out of the No. 1 old furnace, and my old lady, she shouted "her hands—of course her own was in, and her own as her own was in—and she said, "Harry, the pit has exploded", and I said, "It has, right enough", and I made for the tunnel mouth, and where I got there I saw the whole place covered, and I saw the fire coming out of the old furnace, where it has not been coming up for years. That is all I saw.

19020. Q How far is that from the mouth of the tunnel? A Just a little bit of a ridge between the two.

19021. Q A few yards? A A bit more than a few yards.

19022. Q I want you to tell me—I do not know. Was it out of the old tunnel mouth? A The old closed old furnace that was there, that was used in the early days.

19023. Q And you saw the flames, and smoke, and dust, coming out of there? A Yes, I did. I could see a few yards down the chimney from where I was standing.

19024. Q And the old chimney is there? A Yes, it is there right enough.

19025. Q Did any fire come up the chimney? A Yes, certainly, there came a red flame. There is no fire used in that, you know.

19026. Q Did you see some flame come up? A Yes.

19027. Q And you saw it come out underneath too? A No, I did not.

19028. Q Did you see anything but what came up the chimney? A No, only what came up the chimney.

19029. Q From where you were can you see near the mouth of the present tunnel? A Not from where I was, but of course, above of one and beams of wood were sent a long way. I saw that too, but not at the mouth of the tunnel, what happened there. I was not there.

19030. Q What did you do when you saw that? A I ran to the tunnel.

19031. Q Did you see Stuffed under? A I did not see Stuffed. I was too much upset about other things to be looking for anyone.

19032. Q I did not ask you if you looked for him: you often see things you do not look for? A Well, I did not. There was a great noise running—all the place was there.

19033. Q You saw down there? A I could go there in a few minutes, but I could not see the tunnel mouth.

19034. Q If any flame came out of the tunnel mouth, you would not have been able to see it from where you were? A I saw nothing more than I told you.

19035. Q If the flame came out of the present tunnel mouth, you could not see it from where you were? A No, I could not.

Cross-examination by Mr Wade—

19036. Q Do you know if there is another landing, by the chimney of the old furnace, that opens into the air? A A lot of daylight landings all along the surface to where we worked the broken out.

19037. Q No, the old furnace: is that a chimney or a shaft? A There is no shaft near the one that I speak of.

19038. Q You see that chimney within the window of the Court (the chimney of the furnace at the Mine); was it a big, high chimney like that, or simply a shaft, a hole in the ground? A It is a big chimney built from the floor of the roof.

20039.

Texas—H. H. Hasty, 22 March, 1908.

20030 Q A chimney above the ground? A Yes, a long way above the ground. It was built when old Mr. Green was manager.

20031 Q There is an opening apparently quite close to that chimney? A No, I never saw anything, only lots of openings, as you follow it round the ledge in the mouth, and they are all closed over.

20032 Q Did you see any other flame besides the flame coming up this chimney that you speak of? A No, I did not.

20033 Q Did not you see old Mr. Stafford at all in speak to that day? A No, I did not see Stafford.

20034 Q Did not you see him at the tunnel mouth? A I did not see Stafford at the tunnel mouth at all. They were looking for the dead that night, and I was in his house then.

20035 Q Have you been down in Mr. Lyngbalt's office in Wallingburg lately? A I have not seen Mr. Lyngbalt for years, to be in any conversation with him.

20036 Q You did not call on that work? A I did not. I had not seen Mr. Lyngbalt, and I was talking to no man till I came to Sydney. The man I saw was Charles Roberts, and I would have done without him, for I was getting potatoes, and I did not want him.

20037 Mr. Bruce Smith Q You wish you had not come? A I do not wish coming to speak the truth. (Witness retired.)

Mr. A. A. ATKINSON, Chief Inspector of Coal mines, was recalled, and further examined, as under:—
Re-examination by Mr. Bruce Smith:—

20038 Q I think you wish to begin with the recommendations. When you were in the witness-box before, you had not heard the evidence that was to be given by a number of witnesses, and you said that you preferred to deal with these recommendations as a tentative way until you heard what could be said on the other side? A Yes.

20039 Q Now, you have heard all that evidence, and you have put your recommendations now into permanent form, as far as your own diploma is concerned? A Yes.

20040 Q With regard to No. 1, do you remember that I was originally suggested that managers, under-managers, deputies, and shift-boys should hold certificates of competency by examination, and should have had in your mind specified training experience before being eligible for their respective positions, what do you say about that now? A Well, I might say that, with reference to managers and under-managers, I think that the present state of the law is all that is required.

20041 Q Have you heard any evidence to cause you to modify the opinion you expressed in paragraph (1715) about shift-boys with regard to deputies and shift-boys? A No, I have not.

20042 Q Do you remember what Mr. Bruce said in paragraph 12723, "They ought to have some knowledge of the game of a mine, and the game likely to be met with in coal mines, and they should have general experience in mining, as well as experience of actual coal getting—a matter of simply few years at the time which will not be sufficient experience?" A Yes, I think that that fairly expresses my views, with the addition that they should have a knowledge of the general rules and the general rules, and also be connected with reference to them.

20043 Q What is your opinion as to the sort of examination they ought to undergo—whether it should be oral or written? A I think experience in the examination being oral, rather than written.

20044 Q That is, having regard to the class of men? A Having regard to the particular class of men. (Mr. Bruce.) Q Putting some of those men behind a pen would be nearly as bad as putting a lawyer's assistant behind a pen.

20045 Mr. Bruce Smith Q A Yes, many of those men could not do much with a pen.

20046 Q I think you recognize the importance of a manager being the primary checker of the mine, but you are no expert in an examination in those subjects which you have suggested? A Certainly I think the manager in the most capable sets for mining, but the examination does not preclude one from having the final decision after all.

20047 Mr. Roberts Q But there is only have to select men who have not sufficient practical knowledge; he is limited as to his choice of men? A I think it that, if a man thinks he is capable of being a deputy, or a shift-boy, he will not be afraid to undergo an oral examination in order to qualify him for the position.

20048 Q But I think you must admit that many notable men might hesitate to submit themselves to any examination? A Well, they might hesitate, but I do not think that they would allow that to be a bar.

20049 Mr. Bruce Q You think they ought to have enough to do as an ordinary non-examination examination? A I think so, as they have to undertake responsible duties as deputies and shift-boys.

20050 Mr. Bruce Smith Q Recommendation No. 3—"It appears to be vested with absolute power to order the use of safety lamps." What you were examined before, you said (paragraph 12147), "I would propose that the Chief Inspector should have power to enforce the use of safety lamps, subject, however, to a resolution, as provided by the Coal Mines Regulation Act, section 25." Have you heard any evidence to lead you to modify that opinion? A No, I think that is the most reasonable relation of the question, and I think, also, that the suggestion which the Commission made, with reference to the Department of Mines obtaining a supply of lamps, and letting them out on loan to any colliery that might require them, if necessary, is a good suggestion.

20051 Q That was a case in which they have to get lamps in at once, with the possibility that the award may not require them to do so permanently? A Quite so.

20052 Q Now, Recommendation No. 3—"Ventilation by fan-work prohibited, and fans relinquished." You said (paragraph 12181)—in reply to the question, "Where a demand is made that fans should be relinquished for furnace, what would you propose should be done?"—the following, "I would recommend that any such case should be brought within the scope of section 23 of the Coal Mines Act." Now, on that subject have you heard any evidence since you expressed that opinion to cause you to modify that opinion? A No, I have not.

20053 Q You heard the evidence given by the delegates, did you not? A Yes.

20054 Q And you heard that they said about never having considered the expense of this? A Yes; they did not seem to have thought of it.

20055 Q Her of the case of small mines? A No. They had not particularly thought of the number of small mines.

20056 Q And you still think that that reference to ventilation, in cases where the Inspector and the Managers differ, is a fair addition of that question? A I think so, yes. 20057.

30043. Q Now, it was proposed originally (Recommendation No. 4) that the waste workings should be absolutely sealed off, and surrounded by return airways (for fire of moment), such return airways not to come in contact with the mines. Now, in your evidence before (paragraph 12313), you said, "There should always be a sealing off between the intake and the return air," but there should not be a sealing off in such a way as to, I understand, preclude by this recommendation, and I think you heard Mr. Fowler say (paragraph 12310-12311) that it is a dangerous and impracticable proposal? A Yes.

30044. Q Well, you have not heard any evidence which causes you to modify your opinion in that respect, have you? A No.

30045. Q Recommendation No. 5 proposed that—"All places, sampling proceeding driven, should have ventilation not more than 50 yards apart." Your original evidence so that (paragraph 12312 at my?), and you heard Mr. Fowler say (paragraph 12311) that the Manager should be the best judge as to the use of pillars that are safe in the case of his own mine? A Yes.

30046. Q I think you agree with that conclusion, do you not? A I think so. There are so many conditions which have to be considered that it would be impossible to replace the use of pillars to be left in mines.

30047. Q And you have not altered the opinion you expressed in paragraph 12312 at my? A No.

30048. Q Now, the sixth proposal was—"Inspectors with loaded safety lamp in all mines." Now you said (paragraph 12315), "I think that is a necessary precaution, and should be made compulsory, in view of the necessity as to when inflammable gas may make its appearance." You have heard an evidence to cause you to change your opinion on that? A No.

30049. Q But you speak in any connection about an exception in the case of small mines? A Well, in the case of small mines I think that is a provision which would involve such little cost that I do not think it would be necessary to make any exception, even in the case of small mines.

30050. Q Then it would apply to all? A It would apply to all.

30051. Q The seventh proposal was—"Monthly examination and report by district and District Inspector with the hydrogen lamp." Now, you said originally (paragraph 12316), "This recommendation is ridiculous as to the scope of the examination. I do not approve of putting hydrogen lamps in the hands of every deputy, as they require most careful supervision, and on the heads of inexperienced persons they might become a positive danger"; and then you were asked this question, I think, by Mr. Lyngby (paragraph 12317), "Would you approve of the monthly examination by the under-manager, instead of the deputy?" and you answered, "Well, provided he was sufficiently experienced, I do not see any objection to it." And then you were asked further (paragraph 12318), "Well, then, when you put it this way, that you would approve of a monthly examination and report by the Manager or under-manager?" and you said, "Yes, I do not see any objection to that." What do you say now about that, Mr. Harriss? A Well, I think that the inspectors, if it were required to be made by law, should be in the under-manager, and should only refer, more particularly, to the return airways, as mentioned also by Mr. Bellier, and, I think by Mr. Fowler.

30052. Q You do not mean with the hydrogen lamp? A Yes. Then as to the Inspectors, they are then frequently new, and I think it might well be left to their discretion as to whether they use them.

30053. Q What would be that effect, do you think, of making that compulsory with the Inspectors? A Well, having regard to the character of the lamp, and the knowledge required for using that apparatus in as one of the way just of the district with his hydrogen lamp, when the supply might run out, and it is very compulsory that he should only depend with the hydrogen lamp, he might rather have to make to get an additional supply, or have to return and get it himself.

30054. Mr. Robertson. Q Would not the same apply to the officials of the mine? A Well, it is only a monthly inspection which has been suggested for the officials of the mine.

30055. Q Quite so, but their supply might run out, there is no means of refilling when your cylinder is about to be exhausted? A No, but the inspector is only suggested, in the case the return airways are examined, and seeing that it is only once a month, I think they should be able to so regulate the supply of hydrogen for a few days as to be able to do so.

30056. Mr. Bruce Smith. Q If the under-manager suddenly found himself without a supply of hydrogen, the provision that he should make the examination once a month could not be complied with, even if he had to send up to Sydney to get a further supply.

30057. Mr. Robertson. Q You cannot get it in Sydney, you cannot get it out of Great Britain.

30058. Witness. Q If a were made compulsory, it would be necessary for each colony to keep a supply.

30059. Mr. Robertson. The difficulty is that the law will compel you to make a certain examination with a certain gas, and you might find yourself suddenly with your cylinder exhausted.

30060. Mr. Bruce Smith. But I suppose the demand will produce a supply.

30061. Mr. Robertson. Well, I know that shipping companies are objecting to take them, and I take it that every colony would require to have two large cylinders.

30062. Witness. Q Well, I suppose that might be necessary.

30063. Mr. Robertson. Q Would it not be absolutely necessary? A It would be, unless the supply could be obtained in the State.

30064. Mr. Bruce Smith. Q You think it would be an extra precaution? Yes, I think so.

30065. Mr. Fowler. Q Does the Department find any difficulty at present in getting the supplies? A Well, we have to get them from England, and I think the shipping people are very particular about carrying this sort of such a high pressure, but by giving sufficient notice, of course, we can get a supply, three or four months are required.

30066. Q Now, Recommendation No. 8—"Minimum of 100 cubic feet of air per minute to be provided for every horse, instead of 100 cubic feet", in your original evidence you said (paragraph 12314),—"Generally speaking, the actual supply is never reduced in the statutory minimum, and, having reference to the proviso of the Inspector under Clause 1, section 47, I do not see any necessity to alter the law in the direction suggested." Have you heard any evidence, since you expressed that opinion, to lead you to alter it? A No, I have not.

30067. Q Recommendation No. 9—"All doors erected so as to close and remain closed of own motion"; I think you approved of that at the time? A Yes.

30068. Q Have you heard any evidence to cause you to change that opinion? A No, I have not.

Witness—A. A. Henson, 19 March, 1906

- 20048 Q You heard Mr. Robertson's objection that it might destroy, or, at all events, impair, the amount of responsibility on the men, what do you think about that? A I do not think it will have that effect, in fact, I know that, where the same rule is in force in the Old Country, in case of fire during, proceedings occasionally follow after a door has not been closed.
- 20049 Q The responsibility will still exist, with the liability of a penalty? A Yes, the responsibility will still exist.
- 20050 Q Although the doors will be automatic? A Yes.
- 20051 Q The House? Is it possible to provide a door with a sill, or mark it to close at any sill.
- 20052 Mr. Brown Smith. The trouble here is to go through.
- 20053 Mr. Brown. Q Where the traffic go through, you cannot provide anything in the nature of a sill underneath the door? A Oh, yes.
- 20054 Q Then that sill is on the ordinary ground level, of course? A Yes, there is a cut made for the rails to go through, of course.
- 20055 Q Is the lower edge of the door made to come in contact with the sill? A I think it overlaps generally.
- 20056 Q It overlaps the sill? A Yes, as well as overlapping the side joints.
- 20057 Q Then it stops up the intervals? A Yes.
- 20058 Q Then the danger of the doors being stopped is by something on the ground? A Yes.
- 20059 Q And the overlap level of the door would be a little below the level of the sill, I suppose? A Yes, certainly.
- 20060 Q Has any provision ever been adopted to check that by bracing the bottom of the frame of the door, the lower piece of the door, what might be called the sill of the door itself, above the ground, and bracing the lower part, or having it merely a trailing piece of course? A Yes, they sometimes do put a trailing piece of course on.
- 20061 Q That would prevent the door being blocked by a piece of coal or ordinary dirt falling? A I do not know that it would have that effect, but I know that they do occasionally put course on the bottom of the door to prevent lockings.
- 20062 Q The object, of course, is to keep the frame of the door up, isn't it, if it is a wooden door, it would be heavily pulled on to a brass frame? A Yes.
- 20063 Q Or, if it is canvas, it would be a frame with canvas stretched on it? A Yes.
- 20064 Q And the design would be to keep the frame some distance above the floor to prevent its blocking? A I think the object of putting the course on is to avoid any great lockings.
- 20065 Q It would do that, it would clear the space without making the lower edge of the door rigid, so as to be blocked. A door like that could not be blocked by anything but a very large piece of coal, and it would drag over anything else? A Yes.
- 20066 Q A construction of that kind, then, would get over the difficulty which is created by that fact that, notwithstanding door may be blocked accidentally, and then, if a man going through it tries to do what of itself, the door may still remain open, that difficulty would be got over, would it not, by always counterbalancing doors on that principle? A Yes, of course if that were done, it would require a very large piece of stone to get in the way to prevent the door closing.
- 20067 Mr. Robertson. Q But would not it be a difficulty where there is a heavy water gauge, would it not pull the course right through? A Yes, if it were done to the point.
- 20068 Q There are dozens of doors in many places where the pressure is very great? A Yes, of course the pressure is very great near the upper bottom.
- 20069 Q And the course would be continually wearing, and would have to be renewed very frequently? A Yes, no doubt it would.
- 20070 Q If you were making your suggestion and found a door standing open, or partly open, would you consider that a breach of the rule, would you prosecute the management? A If there was a special rule, as then generally in specifying that persons must see that the door is closed, someone would probably have suggested his duty, and should be prosecuted.
- 20071 Q Then when would you hold responsible if you found a door open, which, by the special rule, should be closed? A The man who had went through the door.
- 20072 Q Then you would have to find out who had went through? A Yes, that is the usual method.
- 20073 Q Then you would not hold the Company responsible if you found a door which should be self-closing and was not closed? A Well, if there was a piece of mine on the way, and if that door were open, there would probably have been some neglect on the part of some person who had gone through that door; and, although the door might be on block of open, it might still be, in the usual acceptance of the word as it has been interpreted in the Old Country, a self-closing door. I mean that the principle of having hinged doors is, as you well agree, that they shall be so long that they will close of themselves.
- 20074 Q I follow the principle, but I do not approve of it? A Well, it is strange that it should be adopted in so many districts in France, where both the Managers and the Inspectors have agreed to it.
- 20075 Q Supposing you had a door, which you found open, still in its frame, which might be caused by some of the movements that are continually at work in a mine opening or pushing the coal, or through the pressure of the roof, how would you deal with that? A Well, if there were no model by the principle that it is only expected that they will be closed as far as is reasonably practicable, and if it were shown that there was unusual pressure, which explained the condition of the door, I think that reason would be accepted, and the suggestion would be made that the door be attended to.
- 20076 Q Will you state that the Metropolitan Gallery is an exceedingly expensive one? A Yes.
- 20077 Q And it is also a very gassy one? A Yes.
- 20078 Q And the regulations, at all events as compared with anything here, phenomenal? A Yes.
- 20079 Q Will you admit that the number of doors throughout the mine for all these years has been very great, out of all proportion to any other mine? A Yes, I think the number of doors is great.
- 20080 Q Well, if the system of individual responsibility had worked all these years with the utmost satisfaction in that mine, do you think there is any good reason for legislation, do change that? A Well, with great deference to your opinion, I do not think that it removes the individual responsibility spoken of.
- 20081 Mr. Bichard. Q It is really a double remedy? A Yes. As a matter of fact, the doors at the Metropolitan are wanted to be self-closing, it is only carrying out an old mining principle.

20120. *Mr. Atkinson.* Q Will, I do not agree with you there? A If you open a door in the Metropolitan, and you leave it, it will close of itself, that has been my experience.

20124. Q No, I do not think so? A But I do not wish to suggest that it removes any individual responsibility. I would not suggest it with that slight at all.

20125. Q You will admit that, as far as express is concerned, the difference between a self-closing door and a door that must be closed by a workman is nothing? A Quite so.

20126. Q So it is not a question of expense? A No.

20127. Q And, if the thought of a large and dangerous mine, from years of experience was recalled that a particular system was the best, under those circumstances do you think that legislation should call upon him to alter a system that he has confidence in? A I really do not know; I think that in a matter like the Commission to decide.

20128. Q I am asking you; I may ask the Commission afterwards? A I should like to show the Commission the rules in the Old Country, and to show that this rule is in fact a mine out of twelve districts, and it has worked well there.

20129. Q Has it worked any better, Mr. Atkinson, than the system in force at the Metropolitan? A No; I do not say it has; but I think that your door, after all is said and done, are self-closing doors.

20130. *Mr. Flower.* Q I suppose, Mr. Atkinson, there is a special rule in all mines that a man leaving a door open shall be fined? A Yes, there is a penalty attached to anyone who leaves a door open.

20131. Q That is to say, whether it is a self-closing door or a non-self-closing door? A Yes, that is so.

20132. Q The penalty is the same? A Yes.

20133. Q Then, I do not know whether it is specifically provided, but, from the reading of the rule, it might be implied, and it might also be specifically provided, to close all openings, that, even though a door will not close of itself because of some obstruction being in the way still, if a man comes through and leaves it open, he shall not be protected by the fact of that obstruction being there; but it shall be his duty, unless it is physically impossible, to remove the obstruction himself? A Yes; that would get over every difficulty.

20134. Q If that were so, a man would be as careful as if the door was not self-closing, because he would know that he could not protect himself by suggesting that the door could not be shut? A Yes, quite so; I think they might be included in the special rule.

20135. Q And it would make the special rule clear on that point? A Yes, showing the individual responsibility.

20136. Q If he found the door so open that it would be physically impossible for him to shut it again, he would have to report the fact on the earliest possible opportunity? A I think that should meet the case.

20137. *Mr. Jackson.* Q At present, if you have a door opened, you are depending entirely on the person who has to close that door? A Yes.

20138. Q But, under your proposal, you have an additional security, by means of the doors being so constructed that they will automatically close themselves; but, at the same time, you keep the responsibility on each individual who goes through the door to see that it is closed? A Yes, I think it is an additional security, but I do not suggest removing the individual responsibility.

20139. Q If a door does not close automatically, a new way, logically, leaves it open; but, under your proposal, the door would close itself to that rule? A Yes.

20140. *Mr. Bruce Smith.* Q The tenth recommendation was that there should be double doors on doors between main levels and returns, and between main headings? A Yes, that rule is in force now with regard to main levels and returns, and I am no objection to the rule being applied in the case of main headings.

20141. Q I see you said paragraph 10(7): "Having double doors between main levels and returns has been usual, so far as drafting the rule is concerned, but it may be necessary to carry it a little further in some cases;" how would you carry it further? A By requiring the double doors in main headings as well. Of course, in the fan, or in the last working set through near the fan, it is not always necessary to have two wooden doors, and some provision should be put on the rule.

20142. Q When you and I went through Mount Kemble Mine, we saw a trail of steps pass through a door and stay there for some minutes? A Yes.

20143. Q During that time, if there had not been double doors, there would have been a big scrape of air over the tops of the steps and round the sides? A It would interfere with the ventilation, at times.

20144. Q The steps actually stopped there with the door open? A Yes.

20145. Q That would be eliminated by the double doors? A Yes.

20146. Q But the doors would have to be sufficiently far apart to prevent the possibility of the steps holding both doors open at the same time? A Yes, in that connection the small pillars which are sometimes left do not admit of sufficient space between the doors for a horse and its head to get in between them.

20147. *Mr. Flower.* Q I suppose, in the case of what you call reasonably large pillars, there is always room? A Yes, for instance, in an 8-foot pillar, there would not be room to get two doors with sufficient space between for a horse and half column hole.

20148. *Mr. Atkinson.* Q Do you approve of doors on haulage roads? A No; I think that, whenever practicable, they should be avoided as main haulage roads.

20149. A Would you approve of some legislation to prohibit doors, except under exceptional circumstances (on haulage roads)? A I may say that I have that as one of the suggestions which came later on for the Commission to consider.

20150. *Mr. Bruce Smith.* Q Recommendation No. 11 was that there should be a weekly management of air in each section, and that a report of the same should be sent to the Inspector. In paragraph 10(5)(3), you stated: "Having regard to what I have stated, and to the fact that the proposal, if put into operation, would not, in my opinion, remove increased safety to the workmen, whilst it would add largely and unnecessarily to the work of the management, and considerably increase the demand work of the Inspector, I cannot recommend a change in the manner indicated." Have you found any evidence to cause you to alter your opinion in that respect? A No, I have not.

20151. Q Now, Recommendation No. 12 is—"Extra supply of safety lamps and their regulators, equal to one third of number of persons employed below ground, to be kept constantly in good order and ready for use." Now, you have laid down a proposal that, in the case of mines in which safety lamps are used, an

officials

Witness—A. A. Adams, 19 March, 1905.

additional supply should be provided, equal in one fourth of the number of men employed; and, in the case of mines in which lamps are not used, an extra supply equal to one fifth of the number of men employed? A. Yes.

20052. Q. You have heard some evidence with regard to that, but has it affected your opinion? A. No, except in the case of ——— [interrupted].

20053. Q. Again from the exception—I will deal with that in a moment—I want you to say now with regard to the principle? A. In the large mines, I think that that is sufficient.

20054. Q. Now, with regard to the minimum, I think you have gone some further consideration in that; what do you persons should be the minimum? It is rather a difficult question to deal with? A. Yes, I think that it is rather a difficult question to deal with.

20055. Q. You might just tell the Commission now, as a criterion—because you have only told them from the table, through me, as far—how many mines there are in which less than twenty men are employed? A. About forty.

20056. Q. And down to how many do they go; what is the minimum number of men? A. A couple of men, a single man, in some cases.

20057. Q. And then mine, with only one man in it, actually comes under the Coal Mines Act? A. Yes.

20058. Q. It is in a coal-mine? A. Yes.

20059. Q. What do they do in these cases? A. There are a number of small places near Warrick; and all the coal is carted away to the town.

20060. Q. Where do they get the coal? A. They get it by means of small drams, or working out the old pillars left by a former company.

20061. Q. In old mines? A. Yes, working out the old pillars.

20062. Q. That is in old mines? A. Yes.

20063. Q. Then Mr. Sturges' suggestion yesterday of a feasible one, that there might be a necessity, even where there are only two or three men at work, to have a number of lamps, in case anything happens? A. Yes.

20064. Q. Where property are these mines; are they the property of these men? A. In some cases they are working Crown land, in other cases they are working and belonging to private owners.

20065. Q. Have they any machinery? A. They have a few wind-sets into the tunnel, and they usually push it out by themselves. They do not have any mechanical hoists.

20066. Q. Having regard to all that, what do you propose should be the minimum number of lamps where fifteen or more than fifteen men are employed or underground? A. Say ten safety lamps.

20067. Q. And, before that, you have suggested a minimum of five, I think? A. Yes.

20068. Q. That is, where less than fifteen men are employed? A. Yes.

20069. Q. And that would compel even the smallest mine to have five lamps? A. Yes.

20070. Q. And, even in the case where there is one man, there would be five lamps? A. Yes.

20071. Mr. Sturges. Q. To make it possible for five men to go in, instead of one? A. Yes.

20072. Mr. Sturges. Q. That is what you suggest? A. Yes, and I think it is very satisfactory, because in those cases they have to suffer, and there would be a difficulty in getting these men to look after the lamps when they get them.

20073. Mr. Sturges. Q. Where do they put their valuable plants? A. I suppose they would take them home every night. Some of them take the lamps back home every night.

20074. Mr. Sturges. Q. How this man in report every day? A. Yes.

20075. Q. He has to report to himself before he can start work, he has to act as deputy, Manager, and so on? A. Yes, and sometimes more.

20076. Mr. Sturges. Q. Recommendations No. 13 has—"Providing and hanging rails, and other plans necessary, to be properly valued." A. I am sure that ever convinced that it is impossible to lay down any hard and fast rules.

20077. Q. The evidence against you has convinced you of the soundness of your own first advice? A. Yes.

20078. Q. Just against your conclusion now about watering; you heard Mr. Goodwin, the Ashfield engineer yesterday, say that he would not water round the mine, but that he would water the travelling vein? A. Yes, I heard that.

20079. Q. You hold a quite contrary opinion to that? A. Yes.

20080. Q. What do you personally should be done? A. The most important part of the watering, of course, is in connection with the shafts.

20081. Q. Do I suppose your final conclusion is this way, that you would leave the matter of watering primarily to the management? A. Yes.

20082. Q. But, if the Inspector considers that it is not sufficiently carried out, he should have the power to order further watering? A. Yes.

20083. Q. And, if the management object to his opinion, they should have the right to go to arbitration? A. Yes, that is my view.

20084. Q. Is it possible for anybody to lay down any rule which will apply to all mines and all conditions of working? A. No, having regard to the fact that water has an effect, and also to the fact that the water supply is different in many cases, it is impossible to lay down any rule.

20085. Q. The proposal that you make now would give an opportunity to the Inspector and the management to discuss the matter and agree upon something? A. Yes.

20086. Mr. Sturges. Q. There would be no discussion, if possible, as to the necessity for watering in the vicinity of shafts? A. No.

20087. Mr. Sturges. Q. You would make that imperative, as it is now? A. Yes.

20088. Mr. Sturges. Q. As a matter of fact, you would have General Rule 13 altered? A. Yes, and I will go further than General Rule 13, and say that, even if a flameless explosive is used, they should adopt the same precautions in regard to watering.

20089. Mr. Sturges. Q. I understand you do not believe there are such things as absolutely flameless explosives? A. No.

20090. Q. With the exception of liquid air, I suppose? A. Yes.

20091. Mr. Sturges. Q. You would not take an addition to General Rule 13, providing for the cessation of watering if other precautions are observed? A. No.

20192. *Mr. Moore* Q Has liquid air ever been used as an explosive? A I believe there are some experiments being made now, but I do not know whether it has been successfully applied or not.

20193. Q It would be a useful invention? A Yes, no doubt.

20194. Q There are two passages here that you want to quote. This is a report by S. T. Evans, R. C. M'Pherson, and J. B. Martin, one of His Majesty's Inspectors of Mines, upon the circumstances attending an explosion which occurred at Becklams Colliery (No. 1 Pit) Aberystwyth, on the 3rd of September, 1900:—"The system of watering the colliery along the main road level by means of water pipes, water-casks, and hose, was good; and the work was well carried out, but for this, there is little doubt that the disaster would have been much more serious and widespread than it was." This is dated 23rd October, 1902? A Yes.

20195. Q And again, at the conclusion of the report, "I desire again to emphasize the importance of watering the roads in dry seasons. I had the honor of pointing out in my last report, in your presence, how the danger of an explosion is extended where watering is not thoroughly carried out, and that one should have as an explosion may be initiated by the watering being efficiently done. I also pointed out, in the report just quoted, that watering roads was not, as persons, rather under Act of Parliament, are under the duty of statutory obligation, but I adhere to the opinion that such an obligation should be imposed on the Manager of the colliery, and attention to the management of the colliery,—what do you say about that? A, I think that the Manager should be required to go into the mine twice a week, and to make a complete inspection of the mine once a month. I think also it is desirable that he should make a report of the general result of his inspections.

20197. Q Is that on a special book kept for the purpose, do you mean? A Yes.

20198. *Mr. Atkinson* Q Would you make that imperative under all circumstances? A Well, "so far as is reasonably practicable," using the words of the Diamond Rules.

20199. Q That if his commercial or legal duties, say, call him away for a week or a fortnight, what then? A, I think that the law could be so framed as to exempt him attending to such business as you suggest, with a reasonable excuse.

20200. Q And do you think it is practicable now for a Manager of a very large mine to visit every part of the workings once a month? A, I think so.

20201. Q Having regard to the fact that he is called upon, very frequently, to go to particular parts? A, I think so. I do not know of any mine where you could not go once a month.

20202. Q I can tell you of one where you would be very tired when you finished it? A, I dare say.

20203. *Mr. Stobbs* Q What would you have in this report,—should it be a monthly report, or a report each day that he visits the mine? A, Each day that he visits the mine.

20204. Q Would you have him write up a report on each occasion? A Yes.

20205. *Mr. Bruce Smith* Q Recommendation No. 15—"Instruments to be placed at bottom of opencuts to determine variations of heat and air pressure"—I do not think you would depart from the opinion you expressed (paragraph 20111)? A No, so long as the water gauge is provided for a fan, I think that is all that is required, in addition to the barometer and thermometer now required by law.

20206. *Mr. Moore* Q What does the fan water-gauge show now? A, It shows the balance of water-pressure.

20207. Q Represented by the energy of the fan on the air? A Yes. The difference of pressure between the outside and the inside causes it to go up or, well, in the case of the Horthoglyphs, it indicates, which would mean about 12 or 15 lbs. to the square foot.

20208. Q It is the energy of exhaust? A Yes.

20209. *Mr. Atkinson* Q It represents the drag or friction created by the air? A Yes.

20210. *Mr. Bruce Smith* Q Now, Recommendation No. 16—"Use of manholes enlarged"—well, I do not think you have altered your opinion on that, have you? A No, I think that the present size of the manholes is large enough.

20211. Q The whitewashing, I think, was suggested after you gave your evidence? A Yes; I think that was a recommendation from Newcastle.

20212. Q What do you think of that? A In cases where men are required to travel on the haulage road, I think that the whitewashing should be done, or some indication. I would not say that you should whitewash the wheels of the carts, place, but an indication of whitewash round the track, or on a post, or a very good thing in those cases where the men are compelled to travel on the haulage roads, but, where there is a travelling road, I do not think it is necessary.

20213. Q Would you limit it still further where the coal is being brought out by an engine rope? A, It is not so necessary there as with the other, but I think I would make it apply to any mechanical haulage road.

[The Commission then adjourned until 3 p.m.]

AFTERNOON

[On arriving at 3 p.m. Mr. W. R. Pitt) attended to take shorthand notes of the evidence and proceedings.]

ALFRED ANSLIEY ATKINSON previously sworn, was further examined, as under:—

Examination by Mr. Bruce Smith,—[continued].—

20214. Q There was a question suggested by Mr. Walsh, just before luncheon, as to whether the manholes on the haulage roads, when used by the men who were working there, but not as travelling roads, required whitewashing? A, Do I understand you mean used by workmen who simply attend to the requirements of the haulage.

20215. Q Yes, by men who are doing mechanical work there? A, If the general body of men do not travel on the roads, it would not be necessary.

20216. Q The men working there would have the advantage of the light? A Yes.

20217. Q Walsh, in relation to employees on the status of men? A, I share in my duty, instead of every alternative coal being shown to the men every three months, I would have them shown, on alternatives, on the three months.

20218.

Wheat—A. A. Adams, 22 March, 1902.

20177. Q Regarding the Mark-let, you do not offer any opinion on it? A No, that is a matter for the Commission to deal with.

20118. Q On the matter of salary being not being selected for short-letting? A I have nothing to add on the matter.

20119. Q There are some further recommendations, and I do not think you have expressed an opinion at all on them. They were made by Mr. Brown in the witness box, I think. One suggestion related to machinery for raising persons out of a mine at the second shaft? A That matter is provided for under Section 2 of the Coal Mines Act, and it may be left to the Inspector to suggest such action as he may think necessary, and the matter may be referred to arbitration if not settled.

20120. Q You were of the Manager and the Inspector fail to agree? A Yes.

20121. Q With regard to the appointment of inspectors. It was suggested that the miners should have the right of nomination? A I think that would be a very improper proceeding, either to do it by the influence of the miners or the proprietors. I do not see any reason to alter the present mode of appointment.

20122. Q One witness mentioned the case of Mr. Watson, as being an appointment made by political influence? A I can say that Mr. Watson was strongly recommended by practical men, and he has shown himself to be a careful, capable, and conscientious officer. He was recommended, not only by Managers, but by Mr. Jonathan May, whom he succeeded in the Newcastle District.

20123. Q And by the miners? A By practical mining engineers.

20124. Q Were he not recommended by Mr. Eustell? A Yes.

20125. Q He is a miner? A Yes.

20126. Mr. Eustell. Q He is a member of Parliament? A He was a miner.

20127. Q He has not been a manager, a surveyor, or an engineer? A No, a miner.

20128. Q He was a member of Parliament at the time he made the recommendation? A Yes.

20129. Q Do you think the recommendations would have been taken as much notice of if Mr. Eustell had been a miner and not a member of Parliament? A No.

20130. Mr. Brown Smith. Q Mr. Watson had been Manager for some time at the Rochdale and Garsdale Collieries? A Yes.

20131. Q Do you expect him to stand for the position? A So far, he has proved himself to be a capable officer.

20132. Q You put that man by way of illustration, and, apart from that, you think it would be undesirable to allow the miners or the proprietors to have anything to say in the matter of the appointment of the Inspectors? A Yes.

20133. Mr. Eustell. Q Do you know whether the labour union in the North took any part in the appointment of Inspectors? A I have not seen any correspondence from them. It has not reached my hands.

20134. Mr. Brown Smith. Q In regard to the sanitary arrangements, you have formed the opinion that no rules which might be laid down would be likely to be observed? A I can not advise any measures that would be of much use. There is sufficient disinclination to attend to the matter.

20135. Q Have you noticed that Professor Haldane has reported a new disease in the Colliery mines, as the result of neglect of sanitary arrangements, and that he has discovered a new microbe? A Yes.

20136. Q Is this disease confined to collieries mines? A No, it has been found in collieries in Belgium and France.

20137. Q Have you read the report, and you do not think any suggestion is practicable? A No, I think the workers have the matter in their own hands—all that is necessary is to observe ordinary sanitary requirements.

20138. Q With regard to storing refuse in a mine? A You refer to a suggestion made by Mr. Brown in his evidence, but I think that, as long as the ventilation requirements are carried out, there is not much need to interfere. Where part of the refuse is stored in a narrow place, his objection is because there is little room left in the place.

20139. Mr. Brown. Q That is one of the questions which the Inspectors would deal with in the ordinary way? A Yes, or the Manager would deal with it himself—he would deal with that in the ordinary course of his duty.

20140. Mr. Eustell. Q The defect would not be by reason of the storing of the dirt, but because of inadequate ventilation? A The inadequate ventilation would be the defect.

20141. Q And the Inspector would call the Manager's attention to it? A Yes.

20142. Mr. Brown Smith. Q You have the proposal that travelling roads should be levelled 3 feet high? A Yes, in cases where they were much under that.

20143. Q What is your opinion? A In cases where the height is under 3 feet, it might involve very serious expenditure. In addition to that, it might be undesirable in the matter of competition between owners, as one owner might have a thick bank and another use a thin one.

20144. Q It would divide the disadvantages of some owners? A Yes, and make matters worse actually.

20145. Q You know a case in which it is stated it has been done. Has it been done by Mr. Brown from philosophical motives? A No, it has been done from a business point of view—to get the horses into the mine.

20146. Q That was never to be quoted as an example to others? A No. There is, however, one matter in which the owners could relieve the workers, and that is by making some arrangements to carry their tools, and then save them the trouble of carrying them in themselves.

20147. Q Could that be easily done? A Yes, it was always done in the old country. It is merely a matter of arrangement between the owners and the Managers.

20148. Q In this country, which is indicated here, over time at home? A Oh, yes.

20149. Q For the purpose of shortening the distance? A It is done to increase the roadway for ventilation or haulage purposes.

20150. Mr. Eustell. Q I presume that you are aware that, in many of the collieries in the British midlands, the height of the travelling roads does not exceed from 3 feet 6 inches to 4 feet? I have travelled down myself.

20151. Q It is a matter of wonder? A Yes.

30253 Q If the mine does not like the draftsmen, he can go elsewhere? A Yes, but the draftsmen are accustomed where the men carry their loads.

30254 Mr. Roberts Q Do you know the height of the travelling made on the South Gillies Mine? A From 4 to 5 feet.

30255 Q Are not some not above 5 feet? A No, I don't not.

30256 Q Now, as to blasting? A I was asked by Mr. Williams to think over some directions to General Burt 14, and I have done so. I have assumed that the Commission will make some recommendations with the view of increasing safety appliances under certain conditions.

30257 Q What is the purpose of your statement in the ruling rules? A Compulsion would be indicated in all cases so which has been used during the previous three months, or which are not entirely well thought out. In addition to that, it provides that only day or other non-inflammable substances shall be used for stemming, and shall be provided by the owner of the mine.

30258 Q Have you framed a draft action? A Oh, yes, but I do not pretend to be a parliamentary draftsman.

30259 Mr. Williams Q You propose to abolish the present Rule 12 altogether? A Yes.

30260 Mr. Bruce Smith Q Amongst other things, you propose that the Minister shall have the same power as the home office has in England to promulgate a list of permitted explosives? A Yes.

30261 Q The Minister can, from time to time, alter the list by adding or taking away certain explosives? A Yes.

30262 Q That is the practice with the Home Office, which publishes a list? A Yes, after making tests they put additions to the list, or, in some cases, if the explosives prove ineffective, they remove them.

30263 Q Under the proposed provision, you could avoid payment of the tests made in England, and adopt the English standard from time to time? A Yes, that would save the cost of making tests locally.

30264 [The proposed alterations by Mr. Williams of General Rule 12 were then put on and worked Exhibit 43.]

30265 Q That is the whole of the recommendations which have come in from the delegates from Ilwaco and Newcombe? A Yes.

30266 Q You have more recommendations to make? A Yes. The first is an amendment of General Rule 4, section 45, or by a special rule, so as to require inspection of all places in the working district by deputies, including those temporarily off.

30267 Q What do you mean by a ventilating district? A It is defined in the Act—"Such part of a mine as has an independent intake, communicating by a main intake airway, and an independent return airway, terminating at a main return airway."

30268 Q That is defined? A Yes.

30269 Mr. Roberts Q How far would you go in your inspection? Would you inspect beyond the last working place in the district of air? A good deal of interest has been created during the inquiry upon the importance of checking places worked between working places. I think that, as long as all places are worked up to the last working place, that would be reasonable.

30270 Q There might be a number of places on the return side, distinct from old workings? A By working places, I take it that you mean all ordinary working places.

30271 Mr. Bruce Smith Q You propose something about doors, for the purpose of directing the ventilations? A Yes. As far as practicable, doors for the purpose of directing the ventilations should be worked in the heading road, where mechanical haulage is adopted.

30272 Q Now, with regard to the inspection of roads, where safety lights are used? A I propose, having regard to the many recent fires caused by the use of naked lights, the inspection of all roads and workings in a district where naked lights are used, on the occasion of the day's work.

30273 Q By whom should the inspection be made? A The inspection should be made by the officials, with a linked safety lamp, and a report should be made of the inspection. Several of the colonies do it now, and it would be better if it were made compulsory.

30274 Q You have more recommendations to make regarding the cage, and the use of safety hooks? A Yes. Where there is need for raising or lowering persons, I would recommend the use of safety hooks, to prevent the cage from being over wound, being made compulsory.

30275 Mr. Roberts Q On all shafts? A I refer more particularly to the ordinary winding shaft.

30276 Mr. Bruce Smith Q Where are the hooks placed? A In the haulage over the landing. Most colonies have them.

30277 Mr. Roberts Q What is the present provision in the Act? A The present Act requires either the use of safety hooks or of reduced speed.

30278 Mr. Bruce Smith Q You have a proposal with reference to the finding of gas? A In those mines where safety lamps are not in use, I would recommend that a book be kept for the purpose of reports as to the presence of gas seen by workmen, such reports to be signed by the workman who makes the report.

30279 Q There is a suggestion about keeping a tracing showing the ventilation of the colliery? A All collieries employing more than twenty persons, a tracing of the workings should be kept, showing the direction of the air currents, the positions of the workings, doors, stoppings, &c. This tracing should be posted up at least once in every twelve months.

30280 Q Have you any plan yet showing the ventilation of the Mount Kembla Mine? You mentioned at one option of? A I have no previous plan showing the ventilation in all its details. A tracing could be made of the ventilation of a mine, without interfering with the working plan. That is all I suggest.

30281 Q And this should be posted up for general information? A Yes.

30282 Q I am going from your recommendations. You heard Mr. Roberts give his evidence as to windblast theory? A Yes.

30283 I think you have formulated a number of questions why you are unable to agree with him? I can make unable to reconcile with a cause with the evidence of force and flame which I saw.

30284 Q You say you are unable? A Yes.

30285 Q You have no marked your reasons? A Yes.

30286 Q You may state what they are? A The first is — if it is admitted that the methane force increased as it approached the mouth of the tunnel (where there was the greatest evidence of force and damage here) that fact seems to me to completely upset the probability of wind alone being the cause of the disaster. The pressure

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pressure of the air from the 4th flight, due to a fall, travelling towards the tunnel mouth, would encounter no long but the atmospheric pressure, and under such circumstances the pressure at those started would naturally decrease in that direction. As the tunnel mouth is more than a mile away from the 4th flight, such a flow would probably be expended before reaching that point, especially having regard to the numerous openings on either side of the roadway. As a matter of fact, the third tunnel, whatever may have been the cause, is generally admitted to have been the position of and near to the tunnel mouth. The second tunnel had reference to the first flight, viz.—half a second, assumed for the fall in the 4th flight to have taken place, in order to produce a spread of the air of 100 miles an hour, with a pressure of 30 lbs. per square inch and a temperature of about 350 degrees Fahrenheit. This would be quite unusual, and is not likely to have occurred. The third reason is—The pressure of compressed air of 14 tons per square inch at 30 ft. per square inch, produces a temperature—due to compression—of 100 degrees Fahrenheit, with dry air.

20294. Q You have an authority? A Yes. D. K. Clark's Manual of Fats, Tallow, and Grease, page 712. I may say that the fallers assumed that ignition of coal dust was possible with a temperature due to this pressure, and he was evidently guided by the results of Professor Bodens's experiments. It may be pointed out however, that the ignition of coal dust in these experiments, the lowest of which took place at 301 degrees Fahrenheit, was after the coal-dust had been subject to the gradual effects of oxidation by air passing over it for a period of from 20 to 30 minutes, with a gradually increasing temperature; and this is very different from the carbon insects assumed to have taken place in consequence of the fall.

20295. Mr. Stephens. Q It is only possible with compressed pressure? A Yes. The time limit has a great deal to do with the results obtained by Professor Bodens.

20296. Mr. Brown Smith. Q The oxidation would be slow. You do not think Professor Bodens's experiments apply? A I do not think they do.

20297. Q What bearing do you consider that the burning of the men, as evidence in this inquiry, has on the question? A The burning of men, according to scientific evidence, the first at No. 43 hole, has an analysis of samples of coal-dust and the presence of after-damp, with carbon monoxide, in the air after the accident, all prove the presence of combustion, attended with flame, in the gallery, and, what being the condition with an explosion of fire-damp and coal-dust, these phenomena cannot be explained by a wind blast. It may be pointed out that carbon monoxide, CO, may result from an imperfect gas fire, without second fire, but there has not been any evidence of such a fire in the Edward Kemble Colliery, either before or since the accident.

20298. Q Bearing in mind the numerous deaths which took place, what have you to say? A In my opinion, it is impossible to believe that the numerous deaths, resulting from carbon monoxide in the after-damp, could have been caused to distinct parts or in any part, of the mine by reason of a blast of wind and the mere distribution of coal dust. The creation of so much after-damp could only come from the pressure of flame.

20299. Q And, as to the evidence of force, how do they appear to you in harmonies with the theory put forward? A If a wind blast, with a velocity of 700 miles per hour, came out of the 5th flight pit, there would have been much greater evidence of force in the travelling road than was the case, and it is probable that the stoppage between the travelling road and the haulage road would have been blown towards the latter, but as a matter of fact they were blown towards the travelling road.

20300. Q In the whole of your experience and reading have you come across cases in which smoke chamber in these produced at the Edward Kemble Colliery, have been produced by a wind blast? A No.

20301. Q Have you made out a table showing the results of explosions in Great Britain, extending the list of five or more years, between the years 1883 and 1930? A Yes.

20302. Q You have limited the list to cases in which five or more lives have been lost? A Yes.

20303. Q I think there are fifty-seven cases? A Yes.

20304. Q Out of those, how many are there in which the cause of the accident has been attributed primarily to a wind blast? A None at all.

20305. Q I may premise. I do not say ultimately? A I do not exactly understand what you mean. But there are three cases which I think may be of some interest to the Commissioners, as they have been attributed to hills in one way or another, three hills having been cut the gas upon naked lights.

20306. Q There are three cases, out of fifty-seven, of that description? A Yes.

20307. Mr. Walker. Q The hills forced out gas, not wind? A No, not wind.

20308. Mr. Brown Smith. Q The fall was said to be the cause? A Yes.

20309. Q In any two of those three cases, was there evidence of burning? A Yes.

20310. Q Just describe the first one? A I am afraid I cannot.

20311. Q There was a heavy fall, was there not? A Yes, in the New Dalrymple Colliery, Glamorganshire, South Wales. Naked lights were used. The remarks made concerning the accident are as follow.

During the making the place began to "work," and the men were withdrawn to the heading for safety; as a short time a heavy fall occurred, extending over 20 yards along the face; and almost immediately afterwards the explosion took place.

I may say that the fall took place on the 25th of June, 1883.

20312. Mr. Wynn. Q That fall drove men gas out? A Yes.

20313. Q That gas ignited? A Yes.

20314. Q That gas had not been swept out before, because of its position in the roof? A Yes.

20315. Mr. Brown Smith. Q The fall drove the gas out, and the explosion followed? A Yes.

20316. Q What is the second case? A There was an explosion at the Clifton Hall Colliery, Lancashire. They were using open lights, and 170 lives were lost. The cause of the explosion was fire-damp, suddenly and unexpectedly evolved from the coal or old workings; it was ignited at a candle.

20317. Q Was there no fall? A The fire-damp was evolved from the coal, and, presumably, there was a fall.

20318. Q What was the third case? A The third case was on the 12th of March, 1885, at the Bonyassilly Colliery, Denbighshire. Safety lamps were used, but as it is said to have been taken by the Manager to remove the risk of lamp boys and candles. Twenty persons were killed. The cause was the accidental fall of coal in a 3 inch seam, which caused a sudden outburst of gas, which was ignited where three men and a boy was sitting with open lights.

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20334. Q You have also an extract from Vol. IV of the Federated Institute of Mining Engineers, relating to blowpipes in the iron-ore mines of Cumberland and Furness? A Yes.
 20335. Q You have an extract from Vol. IV of the Federated Institute of Mining Engineers, relating to an explosion of blowpipes in the Black Salt mines at Akmanlısara, Hungary? A Yes.
 20336. Q You have likewise an extract from Vol. IV of the Federated Institute of Mining Engineers, relating to the deposit of the M.I. Close Lead Mines, Derby Dale, Stafford? A Yes.
 20337. Q You have also an extract from the reports of the proceedings of the Flemish Explosives Commission, North of England Institute of Mining and Mechanical Engineers? A Yes.

The extracts were then put in and marked as follows:—

20338. Exhibit No. 41.—Extract from Report of Mr. A. H. Stokes, Inspector of Mines for the Midland District, 1899, pages 7 and 8.
 20339. Exhibit No. 42.—Extract from the Royal Commission on Accidents in Mines, 1890.
 20340. Exhibit No. 43.—Extract from Vol. XVII of the Federated Institute of Mining Engineers, page 255.
 20341. Exhibit No. 44.—Extract from Vol. XIV of the Federated Institute of Mining Engineers, page 112.
 20342. Exhibit No. 45.—Extract from Vol. XII of the Federated Institute of Mining Engineers, page 115.
 20343. Exhibit No. 46.—Extract from Report of the Flemish Explosives Commission, North of England Institute of Mining and Mechanical Engineers, page 78.
 20344. Mr. J. H. Smith. Q With regard to the report of the proceedings of the Flemish Explosives Commission what is that? A That is the result of a Committee which was appointed for testing explosives under different conditions. I think that Committee really assisted the Westwick people in making their experiments, and I thought the conclusions might be of some value to the Commission. They are very short.
 20345. Q There is one paragraph in the report, No. 4, which says:—

In setting a high explosive for use as a mine, it should not be forgotten that the risk of explosion is only limited, and not abolished, by the use.

A That means that the more precautions should be taken with a safety explosive as are required with blasting powder. Paragraph No. 4 of the same report says:—

It is essential that similar precautions of the working places and processes which we have to mine where blasting powder is used, should be rigidly observed where a high explosive is employed.

Cross-examined by Mr. Wells:—

20346. Q Your opinion means that the gas which came from the 4th light was liberated by the fall? A Yes. I was unable to find evidence that gas had ever been seen in that district.
 20347. Q Then, supposing that gas had been given off from those two last pillars, would you not have expected to find collections of it in the corners of the working? A Yes, I think you should.
 20348. Q If the gas had been lying in the road after the pillars were taken out, would you not expect the first fall to have driven it out? A Yes, I should, if it were lying anywhere near where the fall took place.
 20349. Q The other alternative is that it might have escaped through the cracks of the stone to the higher part of the gas? A Yes.
 20350. Q You said just now, I understood, that the initial point of the explosion in your mind was Morrison's light? A I think so.
 20351. Q If there had been much dust in the air at the moment of ignition—do you think there was, between the 4th light and the 5th left? A, I think there would be some dust. It is not a very dusty colliery, but I think there would be a certain amount of dust.
 20352. Q Even if it was not a dusty road between the 4th light and the 5th left, the gust of wind would stir up the dust so as to make the air pretty thick with it? A Yes, I think it would. I do not know about "pretty thick", but there would be dust in suspension.
 20353. Q Do you not think that the light could sight have caused the inflaming of the dust in the first instance? A I do not think so.
 20354. Q Why not? A I feel inclined to agree with the conclusion come to by the Coal-dust Commission on that matter.
 20355. Q There is no case put before the Commission, that, you say you know of no case—in which dust was fired against a naked light? A I do not think I do that.
 20356. Q Do you know of any case? A Oh, yes, there are cases of that sort where falls have caused a stirring up of the dust.
 20357. Q Was not the fall put the light out? A I think there is a case where the light was left, and the dust caught by it.
 20358. Q Can you tell me of any case at the present moment? A I do not think I can at the present moment, but I could if I had time.
 20359. Q You have heard cases of falls? A Yes.
 20360. Q Is it not well to be one of the characteristics of those falls that the light are put out? A Yes.
 20361. Mr. Colverton. Q Do you remember an incident which occurred in the Metropolitan Colliery here, when some gas went to the bottom. No, I mean in relation to some slips? A I have heard of it, but I do not remember the effect on the light.
 20362. Q Have you heard of the circumstances? A Yes, I have not heard of all the circumstances.
 20363. Mr. Wells. Q What do you think the air came out of in the 4th light? A We have been over that before. I could not say what it came out of. I will not attempt it.
 20364. Q Have you no idea? A I could not tell.
 20365. Q Would it come out at some velocity, or would it pass out as an ordinary air current? A I think it is a little more an ordinary air current, but I could not say.
 20366. Q You think that a puff at a rate of a little more than the ordinary air current would push a puff of air on into a cloud on the side? A, It would take more than the ordinary air current to do that, if that was how it was caused.
 20367. Q Where do you think that stream was forced into the air? A I did not see it, I have heard of it.

30366. Q Where do you think it was deposited there, at what stage? A It might have been caused by the explosion itself; although I would not like to say.

30367. Q The explosion coming from where—coming down the main road? A The explosion after it got fairly started.

30370. Q Whereabouts did it get fairly started? A That is rather a difficult thing to say. I must say that I was impressed with the idea of the flame in connection with that, when I said that it was possible that the gas ignited at Morrison's light and travelled back towards the 4th Right, and reflected from some where near where the middle of the body of the gas would be. You can also explain all the directions of flame at that way. It seems to me to have been a very likely thing to have taken place.

30371. Q Do you not think that this long body of gas stretching from the 4th Left to the 5th Right, in the presence of dust, would have caused an explosion before it got back to the 4th Right? A Probably coal-dust has been an agent between the 4th Right and the 5th Right.

30372. Q So, I mean between the 4th Left and the 5th Right. You said that there was some dust in the air there, if the flame of Morrison's light lit the flame near the 4th Left, and the flame ran back to the 4th Right, would not the accumulation of dust between the 4th Left and the 4th Right be sufficient to produce a dust explosion before the light got back to the 4th Right? Do you not think that under all the circumstances it would? A That is, an explosion having started at the 4th Right.

30373. Q You have one long tongue of flame at high temperature. If you introduced that flame with coal-dust suspended in the air, would not that lead to a coal-dust explosion before the flame got back to the 4th Right? A It might, or it might not.

30374. Q Would you expect so to? A If there is sufficient dust in the air, but of course, if the gas was simply burning quietly, it would not have the same effect of stirring up the dust as a flame, and dust would be swept only to travelling steadily along.

30375. Q It would pick up the dust on the roof? A Yes.

30376. Q And therefore in response to its actual passage? A Yes.

30377. Q Would not that cause a dust explosion before the gas got back to the 4th Right? A I would not like to say as to the probability of whether it would or would not.

30378. Q Now, take the ordinary case of dust explosion in which fire-damp is the initial factor. Coal dust explosions have been caused by a small inflammation of gas stirring the dust up? A Yes.

30379. Q The smallest point is to get the dust stirred up? A Yes.

30380. Q If you have a top body of flame, and the dust stirred up, have you not all the elements of a coal-dust explosion? A Yes.

30381. Q Do you not think that you would have a coal-dust explosion, under the circumstances, before the flame got back to the 4th Right? A It is possible, but it is difficult, if that has been the case, to account for all the flames which would radiate from the 4th Right.

30382. Q Do you measure one sheet of flame from the 4th Left to the 4th Right, or was the flame rolled back? A I think it would not do very much.

30383. Q There would not be one instantaneous sheet of flame? A No, it would gradually travel back.

30384. Mr. Alderson. Q That say gradually—it would take place on less than a second? A Yes.

30385. Mr. Fosh. Q The flame would be instantaneous? A The difficulty is in the difference in the gas or explosive mixture which you are talking of. It may not have been a highly explosive mixture until it got to the 4th Right.

30386. Q With not 1 per cent. of fire-damp, in the presence of dust in suspension in the air, produce an explosion? A Yes.

30387. Q You may get 4 or 5 per cent. at the ignition point? A Yes.

30388. Mr. Alderson. Q Would not 1 per cent. of fire-damp, in connection with the agitation of the coal-dust? A There must be some instant agitation of the coal-dust.

30389. Mr. Fosh. Q For what purpose? A To cause ignition.

30390. Q To stir the coal-dust up? A Yes.

30391. Q Whether the flame rolled back, or whether it was in one continuous length, it would have the same effect in producing an increase of the temperature? A Yes.

30392. Q It would have the same effect on the coal dust on the roof, or would it vary in response to the air? I suppose it would get hold of any coal-dust that is on the roof, but it would not have the effect of raising the dust which would be on the sides and the floor. It would not have the same effect of raising that dust as a sheet would.

30393. Q I am taking it that the dust was raised through a sheet of wind coming up from the 4th right to the 4th Left? A Yes.

30394. Q Even at that point of ignition—if the ignition took place at the 4th Left and rolled back to the 4th Right—it would then expand in every direction—up and down the 4th Right—from the initial point of ignition. A It is in the nature of an explosion, there would be expansion, but, if it were in the nature of inflammation only, there would be no expansion.

30395. Q If there were dust going up the 4th Left, you admit that any dust would ignite? A Where there is sufficient mixture of the damp, it would.

30396. Q Take 5 per cent. of fire-damp. Would you not expect that to light up, would you not have all the elements of a coal dust explosion before the light got back to the 4th Right? A It is difficult to explain all the circumstances of the case.

30397. Q Is that not the theory—an ignition in the 4th Left, and an explosion of coal dust coming towards? A The difficulty was to account for the flames from the 4th Right being all lit up. I said that the suggestion made by the Hon. member would account that difficulty. It is hard to say what actually did occur.

30398. Mr. Alderson. Q Did you say before that there had been an explosion in the 4th Left? A I think I did.

30399. Mr. Fosh. Q Do you say you admit that there could not be an explosion of coal-dust? A I do not say there could not have been an explosion of coal dust. I think there could have been one.

30400. Q Do you think that. Take as an analogy the explosion which occurred at the Diamondfield Hoppan. That shows that you may get an explosion from coal dust only without gas? A We have never heard of a case of that kind underground, and, until we hear of something to the contrary, we must accept the conclusion of the Diamondfield as an explosion in itself.

Passes—A. J. Adams, 15 March, 1935.

30401. Q If you had the same conditions as occurred at Biscanopsis, could you not get an indication of the outbreak at the 4th Right? A I do not see how you can have the same conditions in a roadway I feel high as would exist in a box where they were shovelling stuff down. I should prefer to stick to the details of the Coal-dust Demonstration and we get something to the contrary.
30402. Q Did you see the building of a door in the back leading of No. 1, just before of the 4th Right? A Yes.
30403. Q Did there not seem to have been a flame playing on that building stone? A There was a flame, as far as I could observe, only towards the 5th Right.
30404. Q Do you not think it came from the 4th Right? A I could not say that.
30405. Q Did you not realize that the flames on the western side were more affected by the flow than the flames on the eastern side? A I may have been so, I did not observe it.
30406. Q Would that suggest that a flame came out of the 4th Right and turned the corner? A If it did come out of the 4th Right, that is the effect it would have.
30407. Q If you found these facts proved, would not that justify you in saying the flame came from the 4th Right? A I do not think so.
30408. Q If there was the flame, how do you account for there? A The fact of one side being damaged more than another.
30409. Q Well, A, in the first place the mine may not have been built exactly the same, or built with exactly the same strength. You would require a point, direct means evidence to convince you that the flame which produced that effect originated from the 4th Right.
30410. Q When do you say the flame came from, if there are the facts? A I think it was probably produced by the entry of the explosion into the 4th Right.
30411. Q Coming from where? A From No. 1 mine level.
30412. Q From what point? A Inlets of the 4th Right rope road.
30413. Q It came in the first cut-through inlet. Why do in the 4th Right rope road? A There was a stopping between the 4th Right and the 5th Right.
30414. Q If the flame came in the first cut-through, inlets of the 4th Right, the only effect would be to blow it out? A The effect of the stopping would be to remove to some extent, or I may say therefore, the force of the explosion.
30415. Q You mean the back blast? A No, the original force.
30416. Q Do you mean the air rushing in to fill the vacuum caused by the first outbreak of air? A No, I am speaking of the explosion wherever it started moving back to the 4th Right again. There would be a flame running in all directions, one of which would in turn hit the 4th Right itself. There are considerable evidence of ways from there which would be explained in any other way.
30417. Q You saw that dust at the corner of the pillar, on the eastern side of the pillar which is the boundary between the 4th Right and No. 1 rope road? A I do not know that I noticed that in particular.
30418. Q How do you think that dust got there, if there was no rush of air out of the 4th Right? A I think it might be produced by the explosion itself on entering into the 4th Right.
30419. Q How would you get an accumulation of dust and debris at a corner like that. Would you not think it had been carried there? A, I think that it has been deposited there as a result of the explosion.
30420. Q From where. It could not be from the outcrop side? A It has been deposited inlets of which ever point the explosion started at.
30421. Q You think it may have come from a direction inlets of the 4th Left? A Yes.
30422. Q Seeing the large amount of dust coming down there, would you not expect to have a coal-dust explosion before you got to the 4th Right? A It is a difficult thing to explain.
30423. Q Assuming that that is true, assuming that the dust— A Are you right in calling it dust, is it not oil debris, or slack. It is more likely to be slack and debris than dust.
30424. Q I am taking the deposit method on the plan (Exhibit 15)? A Yes.
30425. Q Do you remember an accumulation of dust near the pillars? A I remember an accumulation in form of the rollers between the 4th Right and the 4th Left, but I did not notice the nature of them.
30426. Q Do you remember whether the drift of dust against the rollers was not as pronounced as the 4th Right as on some distance out? A I did not notice that.
30427. Mr. [Adams.] Q On this map, it does not show the drift against the rollers until it gets right? A I am not.
30428. Mr. [Wade.] Q Mr. Connelley was asked, in paragraph 10193 of the shorthanded-notice notes "Q You have shown on the side of the 4th Right an accumulation of coal dust, including a wad of wood round the corner, like a wave? A Yes."
- Supposing that had come out of the 4th Right, would that indicate velocity? A I think, if it had come out of the 4th Right, there would be an equal deposit on the other side.
30429. Q I say, suppose it did? A I do not think it is a fair assumption to say that it is from the 4th Right, seeing that there is no deposit on the other side.
30430. Q Would not the board might make a difference, and prevent an accumulation on the other side? A I do not think it would account for the uneven character of it on the other side.
30431. Q Take the 4th Right. There is the same thing there. There is an accumulation of wind-blown dust, or small coal, on one side, and none on the other? A Yes.
30432. Q You say that it is possible? A That is no argument; that the flame came out of the 4th Right.
30433. Q And that you expected to find a deposit on both sides of the road? A I said, if it came out of the 4th Right, I thought there would be a deposit on the other side.
30434. Q Supposing Mr. 1 mine road was the 4th Right and the cut through on the 4th Right is the mine road? A The two mine are not parallel.
30435. Q You admit that the flame went inlets past the cut through at the 5th Right? A Yes.
30436. Q Turned the corner, and caused a deposit of dust at the cut-through? A Yes.
30437. Q The opposite side is free from dust? A Yes.
30438. Q Take the 4th Right? Suppose the dust had been there and—would not exactly similar results have been produced there? A No. In this case the deposit is on the right angle, and in the other case it is made parallel.

20429 Q Your objection was that you did not have dynamite both sides? A Yes, if the force came out of the 4th Right, and if one was a deposit, so was only, I think there would be a deposit on the other side.

20430 Mr. Roberts.] Q Is it not possible that (the deposit) may have been there originally? A Yes.

20431 Q Permitted by the law of the matter? A It is possible, but I did not notice it particularly myself.

20432 Q Looking in what Mr. Campbell did observe. He shows a part of the road was swept clean. He showed what is left. There may have been a quantity of small coal and dust on that road, and part of that may have been swept clean, and the remainder of it be shown on the plan? A Yes, that is again possible.

20433 Q Imagine an explosion takes place. If the force of the explosion entered the 4th Right, say small coal lying at the corner would be protected? A Assuming that it commenced at some point (side) of the 4th Right.

20434 Mr. Steele.] Q Is the whole of it small coal? A Mr. Campbell says it is small coal.

20435 Mr. Finch.] Q As suggested by Mr. Robinson, that and is a survival probably, and not a deposit? A Yes.

20436 Q Do you think that the conclusion in the 5th Right cut through is a deposit or a survival? A There would be more reason to believe that part of that was a deposit, because that is a leakage road, on the 5th Right.

20437 Q It is a cut-through I am talking about. A The same thing applies there; it may be either one or the other.

20438 Mr. Roberts.] Q That may be a survival of coal originally on that road? A Quite so.

20439 Q Would you not expect to find a similar deposit at the top corner of the travelling road if it came from the 4th Right? A I think it would be there.

20440 Q Is there any reason why there should be a deposit at the bottom corner and not at the top corner? A I do not think there is.

20441 Mr. Steele.] Q If there was a lump of coal there before the disaster, would you find it there afterwards? A If the force came out with a speed of 120 miles an hour, most of it would be shifted.

20442 Mr. Steele.] Q Now you said that these experiments, to quote that at a temperature of 251 degrees, were with dry air? A I think so.

20443 Q Is there anything like that in Becham's account of the experiments? A I am not sure whether it was dry air or moist air.

20444 Q Is there no distinction drawn by him at all? A There was not, he.

20445 Q There is nothing in Becham's experiment as to pressure—whether it was continuous? A I think it was under the ordinary atmospheric pressure.

20446 Q There is nothing to say that his experiments were made by continuous pressure? A I think they were made by simply passing the air over the coal dust at the ordinary pressure, but at an motion in the temperature.

20447 Mr. Roberts.] Q At the ordinary pressure of the air compressor? A No, not the air compressor. It was simply a small apparatus.

20448 Mr. Finch.] Q You say it was not an air compressor? A It was not, in the way which describes the experiment 251 degrees.

20449 Q Am you sure? A I will not swear by it, but I know that the chemical apparatus and the thermometer that I noticed were not connected with an air compressing machine. It was simply the ordinary pressure, I think.

20450 Q We have been debating the experiments all through under the idea that they were made by means of an air-compressor? A As I looked at a diagram of the apparatus with which he conducted the experiments, I noticed an air-compressor.

[The Commission at 4:15 p.m., adjourned until the following morning.]

FRIDAY, 19 MARCH, 1909.

[The Commission met at the No. 1 District Court, Day-street, Sydney.]

Present.—

C. E. H. MURRAY, Esq., D.C.J. (PRESIDENT).

B. A. W. ROBERTSON, Esq., Commissioner.

D. KITCHER, Esq., Commissioner.

Mr. Bruce Smith, Barrister-at-Law, instructed by Mr. Wood, Crown Solicitor's Office, appeared on behalf of the Crown.

Mr. A. A. FINCH, Chief Inspector of Coal Mines, assisted Mr. Bruce Smith.

Mr. A. A. LYNCH, Solicitor, appeared on behalf of—

- (a) the representatives of deceased miners, whose, &c. (victims of the explosion);
- (b) the employees of the Mount Kembla Colliery (miners, whose, &c.), and
- (c) the Harbours Colliery Employers' Association (the Harbours Miners' Union).

Mr. C. G. Wade, Barrister-at-Law, instructed by Messrs. Curzon and Bony, Solicitors, was present on behalf of the Mount Kembla Coal and Oil Company (Proprietors of the Mount Kembla Mine).

(Mr. W. R. Frost, Assistant Shorthand writer to the Commission, was present to take shorthand notes of the evidence and proceedings.)

ALFRED ABBLEY STRINBON, prominently known, was further examined, as under:—

20451 Mr. Roberts.] I would like to mention an accident which occurred at the Metropolitan Mine, basing on the possibility of dust being ignited by naked lights. On a particular day, when nearly everybody was out of the mine, there was some mechanical work to do at the bottom of the downcast shaft, and on that particular day permission was granted to use three or four very large torchlights, and it happened that the men were engaged shovelling up dust from the road. Two slips were sent up at the night, but

Witness—J. A. Johnson, St. Louis, 1935.

The witness was not properly edged out, and a ship came out of the cage and departed about 2 tons of dust into the nearest shaft. This made a dense cloud. I met the cloud about three-quarters of a mile away, and it was so dense that I at once concluded that there had been an explosion. Just when I came up there I found out what the real cause of the accident was. That dense cloud of dust came down on the three or four long towlights, so that, if dust was capable of being ignited by a naked light, you could not imagine a more favorable event than that for ignition. I will even go as far as to say that the dust may have contained a small percentage of free-sulfur, because on the main inside it is possible to get from 5 to 6 per cent of gas. I am quite willing to go into the box and testify to that matter, as it is rather important. There is also some screening there, and, as Mr. Johnson is aware, there is usually a thick cloud of dust around the screen, but we never have anything to happen.

1934E. Mr. Wade | Would not the heavy dust get to the bottom first?

1934F. Mr. Johnson | Yes, but it was a dense cloud.

1934G. Mr. Wade | At the time the dust came into contact with the lights, it would be the heaviest dust.

1934H. Mr. Johnson | The circumstances would be like. You must remember that the shaft was 1,110 feet deep, and probably discharged its contents of air on half a minute. It would not be more than half a minute before the lighter dust would reach the naked lights.

1934I. Mr. Wade | Were the men's lights put out by the fall of the truck?

1934J. Mr. Johnson | No.

1934K. Mr. Wade | If it was a harmful series of all the gradations of dust that could possibly come on elephants, right through.

1934L. Mr. Johnson | There was another accident some years after that. Two cages got into collision, whilst running on the wire guides. They ran into each other while travelling at a rate of 60 or 65 miles an hour, and the consequences were rather serious. The cages went down to the bottom—80 feet under—and a certain thing happened. There were two barrels from the bottom of the shaft running to two haulage cages below, and the dust ran along the barrels, it got under them. The men in the cages never heard a barrel come, and a couple of them shot right through these barrels into a place where a man was standing. He concluded that there was an accident, but it was nothing but the bottom and the spouts generated by the two cages and the two ropes striking together at the bottom of the shaft. The blame was nothing but the spouts created by that tremendously heavy weight of iron falling down 80 feet, but although there was very fine dust in the tunnel it did not ignite. Of course, the degree of combustibility of different kinds of dust depends upon its chemical composition to some extent, although, as Mr. A. H. Lawrence says, the Metropolitan dust is particularly fine.

1934M. Mr. Wade | These facts, as stated by Mr. Robertson, will appear upon the Motion, and we shall insist then on having rapid weight with the other evidence which has been given. Mr. Robertson has offered, if anybody wishes, to make his statement in evidence in the full sense by deposing to them, but I do not suppose that anybody here wishes to suggest that.

1934N. Mr. Wade | I do not think there would be any Cross if there were two Commissioners on the bench and one in the witness-box.

1934O. Mr. Wade | I may say that I have intentionally, in summing up to the jury in various cases, with the consent of all concerned, stated certain facts which I have known to relate to places.

1934P. Mr. Wade | The question is how far a Judge's knowledge is to be used in evidence, but there is certainly no objection in this case.

1934Q. Mr. Wade | Oh, no.

Further cross-examined by Mr. Wade.—

1934R. Q. There was some conversation you wish to make? A. In connection with the hoists used at the Australian Agricultural Company's Mine No. 10 instead of hoists which I stated that the hoists were not hoisted and lowered. Since then I have found that they are hoisted and not lowered.

1934S. Mr. Wade | Are they not hoists? A. I think they are not hoists.

1934T. Q. With regard to Professor Holman's experiments? A. I have brought the book with me. The question was whether the experiments applied to air under pressure or not. I am that the first two sets at which a temperature of 281 degrees was obtained were with air at the ordinary pressure. He then says that it was very thought desirable to make some experiments with an added pressure, but in consequence of something going wrong, the experiments were unsatisfactory, and permission was obtained from Mr. H. Lawrence, of the Grange Iron Works, to make some trials with air supplied by an air-compressing engine.

1934U. Mr. Wade | Look at Exhibit No. 60 in plan;—do you remember the narrow band on the right side of the 4th Right? A. I remember seeing it.

1934V. Q. You went to the conclusion that that came from the 4th Right? A. I could not say; I believe it came from the 4th Right.

1934W. Q. Do you mean probably? A. It may probably have come from there.

1934X. Q. In this plan, there is dust against the rollers at 83 feet from the 6th Right? A. Yes.

1934Y. Q. That would tend to show that the right of force must have been at the 6th Right or else close to it? A. Yes, I think it shows that.

1934Z. Q. I want to ask you about the examination which you made on 4th August, with Mr. Hamble and Mr. McDougal. Is it correct that Mr. McDougal did the reading, and that you did the hauling, as that day? A. I think so.

1935A. Q. As he made the tests, I suppose, he would report to you, and you would get it down? A. Yes, of course, I would sometimes make a reading myself, or Mr. Hamble would do so.

1935B. Q. Either you checked him yourself, or Mr. Hamble would be there? A. I think so.

1935C. Q. Now, you have made no hint of you being bound to the 11th Right? A. No.

1935D. Q. You had no report made to you about it? A. No.

1935E. Q. Either by Mr. McDougal or Mr. Hamble? A. No.

1935F. Q. Do you remember Mr. Hamble or Mr. McDougal going up to the goal edge to the 4th? A. Yes.

1935G. Q. Where were you? A. I was in the travelling road.

1935H. Q. That would be 80 yards away? A. Well, the goal edge is a little over 10 yards from the travelling road.

1935I.

20242. Q You know they were going up to test, or that one of them was going to test? A I thought that would be one of their objects, at least.

20243. Q Did you make notes in the notes from time to time? A Yes.

20244. Q On the spot? A Yes.

20245. Q On the 24th August you were with Mr. Hamble, Mr. Daniel Robertson, and Mr. McGeehan? A Yes.

20246. Q Some of your party concerned for gas on that day? A Yes.

20247. Q And you went before, where at the request, that you found on the dune? A I examined myself on that day.

20248. Q Was anybody else with you? A I think Mr. Hamble, Mr. McGeehan, and Dr. Robertson were at the time by.

20249. Q You were up close to the gas edge? A So far as I remember.

20250. Mr. Fiske? Q You say you tested on that day? A I saw by a note that I tested about 6 feet above the dune.

20251. Mr. Fiske? Q Just tell us at what points you got those samples of coal dust which were examined by Mr. Mangrove? A Well, they are all collected on the place (Sketch No. 10) by numbers, commencing with No. 1, at the junction of the main tunnel, and No. 1 Right. Other samples were taken—twelve in all.

20252. Q How far was the second place from No. 1 junction? A The second place was 250 yards below the junction of No. 1 Right and the main level.

20253. Mr. Hamble? Q It is hardly worth while to go into the matter of distances, they are shown on the plan in relation to points that are well known.

20254. Witness? Samples Nos. 1 to 12 came from No. 1 main right rope-road, with the exception of No. 11, which was taken on the 4th Right road, between the travelling road and the gas edge, while No. 12 was taken on No. 1 main level, about 150 yards on the top side of the 4th Right.

20255. Mr. Hamble? Q Did the samples of coal dust come off the props, or from what places? A They came off the timbers as near the wall as they could be obtained.

20256. Mr. Fiske? Q That last sample was got from the 4th Left road? A Yes, I collected them myself.

20257. Q That was reported as showing no sign of nitling? A Yes.

20258. Q Wasn't the 4th Left rope road, or the travelling road? A The rope road.

20259. Q The many samples were taken from there? A Only one sample, in that case.

20260. Q Where was that from? A Not far from No. 1 main road.

20261. Q I want to ask you this question—you mentioned Mr. Jeffrey gave evidence about 1 lb. of dust to 100 cubic feet of air being dangerous by itself? A Yes.

20262. Q Do you agree with him that that was actually dangerous by itself—that there is actually a danger of obtaining the dust by itself, without the presence of the damp? A I think that the dust in quantities does not constitute a danger by itself, if resting on the walls, but it is only when certain conditions are existent. On page 22 of Galloway's "Lectures on Mining" he says—

As the result of the experiments described above, I came to the conclusion that a small proportion of the damp in the air was necessary to produce an inflammable mixture with coal dust. I did not then realize that the velocity with which the mixture was passing the flame in making the experiments might affect the question, and it was only afterwards, when considering that result of experiments which had proved that the mixture showed no action, and when making experiments on it myself only once I finally concluded that an coal dust must collect only on an explosive mixture, and not where there is no damp. After giving up reasons for thinking that a small proportion of the damp was necessary, I was bound down in the next paper (p. 111)—"It is always possible, however, that coal dust could be made, for example, that, when thoroughly mixed with air, in the presence of damp, it is of such that it would lead on the mixture in light inflammable as ordinary lamp gas, and, if so, it might be so nearly inflammable that an explosive layer in it is not so much open to be propagated through."

20263. Q It would appear from that that Galloway had in his mind the presence of the damp? A Yes. In 1875, he was just getting on the idea of coal dust being an agent, but he afterwards came to the conclusion that coal dust itself, without gas, might be dangerous to run a shot. The last paragraph in the one that Mr. Jeffrey quoted, and you have read the previous paragraph.

20264. Q With regard to the suspension with the hydrogen lamp by called managers. If this were made a compulsory matter, you would like, I suppose, ask for a penalty to enforce it? A There would be no use in making the suspension compulsory, unless there was a penalty for the breach.

20265. Q Might there not be a difficulty in getting out the hydrogen? A Yes, there are difficulties now.

20266. Q The objections on the part of shippers are increasing? A Not to my knowledge. I know there are difficulties; but I do not see, if hydrogen lamps are recognized, a necessity, why the gas should not be manufactured here. I think it would be if there was local that there was sufficient demand.

20267. Q Although you want to make it a hard one for test, accompanied by a penalty, you admit that there may be a difficulty in getting a supply of hydrogen? A I think that any penalty would be waived if it were shown that reasonable means had been taken to get hydrogen, and that the mine-owners had failed to obtain it.

20268. Mr. Jeffrey? Q It is only a few years since that the hydrogen lamp was brought into use? A Yes.

20269. Q Is the lamp not used now in a great many mines? A Yes.

20270. Q That shows that the Managers are quite alive to the importance of testing with hydrogen? A Yes, it certainly does.

20271. Q Considering that it is only a few years ago, when you first came to the State, and there was only one lamp here? A I brought the first one out with me, or a matter of fact.

20272. Q Do you not think that it would be hard to impose a duty, under a penalty, when, so far as you can see, the mine-owners are anxious to carry out the duty? A Yes, perhaps it is so.

20273. Q In addition, there may be a difficulty in obtaining hydrogen? A There is a difficulty in that now.

20274. Mr. Fiske? Q The device is that the most modern appliances should be used in testing? A Yes, so long as they are used with discretion, but, seeing that the hydrogen lamp is one that requires careful handling, it should not be allowed to go into the hands of all sorts of people.

Witnessed, A. Wilson, 27 March 1933

- 30321 Q You believe that the most modern appliances should be used, and that as small a percentage of gas as possible should be discovered? A Yes.
- 30322 Mr. Beltrami Q You mean the most reliable appliances? A Yes.
- 30323 Mr. Bruce Smith Q What is the purpose of the letter you received from Mr. Martin on the subject? A He said that the hydrogen lamp was little used in the Old Country, and that all the Inspectors looked for their guide in the ordinary safety-lamp. In fact, there are some remarks in the last report on the McLaren Colliery explosion, in which he said that it would hardly be expected that the Inspectors should vary about with them a chemical laboratory. He considers that the indications of the ordinary lamp, if used, are reliable.
- 30324 Mr. Anderson Q Do you think that any Manager would be so obtuse as to refuse to use a special safety-lamp for testing if you reported him to do so? A I do not think so. I think they would generally do it, especially if it came on a request, with the strength of the Commission behind it, rather than a merely compulsory. I think they would fall in with the suggestion.
- 30325 Q Under the circumstances, do you think it necessary, considering the difficulties that there should be any compulsory use of the lamp? A Well, I think the compulsory part of it should be waived for a year or two, and, if I found that the Managers were obstreperous, and would not make use of all modern appliances, I would report the matter to the Minister, who would probably have an opportunity of enforcing it in any Mining Bill which may result from the suggestions of the Commission.
- 30326 Mr. Wick Q With regard to watering, I understand that if, on any particular mine, you found the backage road were not watered, because water was not available, you would take that as an excuse, provided that the necessary precautions were taken in the neighborhood of firing shots? A And with reference to the use of safety lamps as well. For instance, in a mine in which there is a small quantity of the damp gases to be given off at times, and it was known to be dry and dusty on parts, I think that, in addition to the prevention of watering where a shot was fired, they should use safety-lamps.
- 30327 Q Then the introduction of safety-lamps would be based on, I understand, on the occasional flaring of gas? A Yes on the definition of a gassy mine.
- 30328 Q Where a mine does not come within that definition, and they are using naked lights, if they take sufficient precautions to prevent explosions when firing a shot, would you be satisfied with that, if it was not the practice to water the whole of the mine, in addition? A Yes, I would be satisfied.
- 30329 Q The first element of safety is taking precautions when firing a shot? A Yes.
- 30330 Q The other matters are afterwards attendant upon some failure at the initial point? A The only other dangerous contingency is possibly a defective safety lamp.
- 30331 Q You are thinking at the present moment of firing shots at the face? A I mean firing shots in any dry and dusty place.
- 30332 Q If necessary, the firing of a shot on the main backage road would be done under the same conditions—would you be satisfied if the same conditions of safety were observed? A There are other precautions necessary on connection with the firing of a shot on the backage road. The withdrawal of the ordinary workmen from the mine would apply in that case.
- 30333 Q What is required, so far as watering is concerned? A Twenty yards' thorough watering is sufficient, I think.
- 30334 Q So that the danger from dust when a different way—of there is a violation of the rule as to dragging shots, or if the safety-lamps, if they are used, are defective? A Yes.
- 30335 Q If you are working in a naked light colliery, the danger only arises if there is non-compliance with the conditions of firing a shot? A Yes, that is so.
- 30336 Q What you say is, if it is practicable, you would like to see the roads watered? A I think so.
- 30337 Q As to the Managers visiting the mine. You put down a limit of twice a week, is which they are to visit the mine, and they are to go over every part of the mine once a month? A Yes.
- 30338 Q I suppose you realize that the Managers have many calls away from the mine? A Yes.
- 30339 Q They may be away sometimes a week or more at a stretch? A Yes.
- 30340 Q You know, during the arbitration case at Wollongong, some Managers were away for weeks? A That should not prevent their visiting the mine.
- 30341 Q You are laying down a definite rule of twice a week? A To be qualified by the words, "as far as is reasonably practicable."
- 30342 Q That is the unwritten law now, any far as is practicable, the Manager should visit the mine as often as he can? A The mine is under the control of the Manager or under-manager. The under-manager goes in every day, and the Manager as his discretion.
- 30343 Q Do you not think it would lead to difficulties to lay down a hard and fast rule of twice a week? A I do not see why they should not. A reasonable and conscientious man would visit the mine at least that number of times each week, but there are some men who do not.
- 30344 Mr. Beltrami Q Could you not deal with these men? A I do not see how we can. We could not, unless the Inspectors went about like detectives, to ascertain the movements of the Managers, and we would not like to do that.
- 30345 Q If the workmen had reason to believe that a Manager is not doing his duty, they can complain to you? A They can.
- 30346 Mr. Beltrami Q It would be very unpleasant for the workmen who are under the Managers to be deterred by A With regard to any information given to myself, any workman would be safe, so far as regarded his mine and getting to the management.
- 30347 Q Suppose you were called upon in a mine proof? A Of course, if it became a question of court proceedings, it might be necessary for the mine to be shown; but I do not think that any manager, under any circumstances of that sort, would disguise a mine.
- 30348 Q That is a debatable question? A Yes.
- 30349 Mr. Beltrami Q There are some instances where Managers neglecting their mines? A There are one or two.
- 30350 Q Do you not think that representation from you to the miners might be effective? A I cannot say. I do not think there is any difficulty in a Manager being compelled to visit his mine twice a week, and to go over the whole of the mine once a month.
- 30351 Q You are asking for what I have to be an impossibility—that a mine should be fired down to just every part of the mine once a month. I have it to be an impossibility? A I do not think so. I do not think it is that high.

20152. *Mr. Green (cont.)* You have not made any distinction. You have not made any difference between a working place and a waste? A. I do not expect a manager to go into the nature of a good

20153. *Mr. McKenna* [Q] What would be possible in a small mine would not be possible in a large one? A. I refer to the generally accepted definition of the terms "wasting" and "impairing." It is not possible such places as the centre of shafts.

20154. *Mr. Wade* [Q] You mean accessible places, or where the works have been abandoned, or waste, as far as they are accessible? A. Yes.

20155. *Mr. McKenna* [Q] A colliery proprietor would have to employ a manager, not for his ability and skill in mining, but for his qualifications as a speaker.

20156. *Mr. Wade* [Q] If a man was a speaker, it might be an additional qualification? A. I do not expect any impossibility, and, if it were found that this position could not be carried out, the suggestion might be altered in such a way as to bring it within the realm of being possible, but still requiring the attention of the manager twice a week.

20157. *Q* And, unless he can show to the satisfaction of the Chief Inspector, that it is impossible for him to do it? A. Yes, something like that.

20158. *Mr. McKenna* [Q] In a large mine it would take the Manager a month to do the work, and then how much time would be left for the performance of his other duties? A. I can only say that I should be glad if the Commission would make some suggestion which would compel managers to make periodical inspections of the workings of their mines.

20159. *Mr. Wade* [Q] If the Commission adopted the suggestion that a manager should visit the mine twice a week, it might really mean nothing beyond the mere visiting of the mine? A. I think I would define it that a manager should visit part of the workings and return twice a week. I would not be satisfied with a man going to the pit bottom and coming up again.

20160. *Q* As time goes on, and the mines increase in size, and the area to be visited becomes larger, would not that make the carrying out of the rule impracticable? A. As far as the limits of time to get round the whole of the workings, it would; but it would not affect the ability of a manager to inspect the workings twice a week.

20161. *Q* You have nothing definite as to what part of the workings could be visited. The Manager might look at one or two returns and one or two roads, and see nothing else? A. I do not draft the rule. That would be for the Parliamentary draftsman to do.

20162. *Q* You suggest that the Manager should go down the mine twice a week—that he should be under a penalty to do it? A. Unless he can show a reasonable cause why he was not able to do so.

20163. *Q* Do you suggest that in visiting a mine, the inspection of one or two places would be sufficient? A. I have said it that the Manager should get through the whole of the mine in a month. Mr. McKenna says that is impossible.

20164. *Q* Would it not be better to be on the safe side for a start. If once you get out of Paris street passed, it might be impossible to modify it? A. I would like to be on the safe side.

20165. *Mr. Wade* [Q] I take it that the desire is to make it compulsory to compel a manager to give services which might be valuable in connection with the underground workings of the mine? A. Yes, as far as it is reasonable to demand his services, having regard to his performance of other work.

20166. *Q* At present he need not go underground at all? A. The mine is duly supervised by the manager or the under-manager.

20167. *Q* Suppose you had a complaint that the Manager had not been underground for six weeks, what would you do? A. I would take no legal action, but it would make representations on the matter.

20168. *Q* Is there no power under the Act? A. There is power under section 14. I think such a case might be dealt with in that way.

20169. *Q* Is that section intended to deal with such cases? A. I think it might be fairly held that that section applied to such cases.

20170. *Q* Would not that section probably deal with cases in which there was some disaster or loss of life or property, through the neglect of the Manager rather than a case of any other kind? A. There are cases which have been dealt with under that section, although no accident has happened. I think a Manager's certificate has been questioned under that section.

20171. *Q* On what case? A. In the Newcastle Company's case.

20172. *Q* There was an accident there? A. There was a man burned with gas, but it was not in the nature of a disaster.

20173. *Q* It was, in a sense, an accident? A. It was an accident, and ought to have been reported; and, so far as that goes, the Manager was to blame.

20174. *Mr. Wade* [Q] I want to ask you about the surface rights within the control of the water and sewerage area. You know the South-Ball Colliery, and the lay of the land? A. Yes.

20175. *Q* Do you think it would be an advantage in the way of economy of power, in connection with the law for ventilating purposes, if there was a shaft to the mountain? Yes.

20176. *Q* That would be better than bringing the air out of the tunnel mouth? A. I think it would be an advantage to have the shaft further back—near the centre of the workings.

20177. *Q* It would be an economy, because you would want less horse power? A. You would require less length of roadway, and consequently less power would be required to force the air through the workings.

20178. *Q* It would be against the miners? A. Yes, it would produce better results.

20179. *Q* As the mines become developed in the north, the difficulty of having shafts at the mouth will become more acute? A. Yes.

20180. *Q* At present you cannot place a shaft outside unless you obtain leave from the Water and Sewerage Board, it being within these limitations? A. No, you cannot sink a shaft without permission of the Board.

20181. *Q* Are you in favour, officially, of some application being made to the Board for them to grant permission to sink these shafts? A. Yes.

20182. *Q* Do you think it would be of service in the interests of all parties? A. Yes.

20183. *Q* You say that, as regards official capacity? A. Yes.

20184. *Q* I may say that I have received a letter from Mr. Seddon, explaining that he could not put the matter before the Commission, and asking me to bring it forward. They are labouring under a difficulty at

Witness—A. J. Adams, 20 March, 1900.

at South Bull. They are putting up a new fan, but they are compelled to put it at the tunnel mouth, which causes expense which would be avoided if they were allowed to stick a shaft at the top of the mountain.

20000. *Mr. Howe* ? Where there is a splendid alternative

20000. *Mr. Howe* ? *Q* Mr. Adams asked the Commission to take some steps to induce the Wier and Schwartz Bros. to allow the railway to sink shafts from time to time ? *A* Yes, I am in favor of it.

20001. *Q* As time goes on, and the collieries become developed under the lease of the mountain, they will be compelled to have constant shafts to the surface of their property. South Bull is an extensive colliery, and they are compelled to put up a ventilating fan at the entrance to the mine.

20002. *Mr. Howe* ? The firehole of the mine is under the settlement area ?

20003. *Mr. Howe* ? It may be so

20004. *Mr. Francis Smith* ? I think Mr. Adams used previously that the sinking of a shaft in the mountain might involve the carriage of coal up there, and the presence of one or two men is obliged to the engine and the boiler, and the objection is to keeping a population on the settlement area. Will Mr. Adams recommend it.

20005. *Mr. Robinson* ? The settlement area is some hundreds of miles in extent and are our mineral resources for ever to be looked up and never to be developed, and this is a State where property is supposed to be in some measure dependent upon our mineral and energy ?

20006. *Mr. Howe* ? The languages do more harm to the settlement area than the mining does.

20007. *Mr. Robinson* ? *Q* In connection with these experiments, it is apparent that the results were brought about by putting the dust into a chamber which was freely heated ? *A* Yes

20008. *Q* And those quarters as being elapsed before the dust dust reached the temperature of the bath ? *A* Yes

20009. *Q* Now, even if some force of air came out of the 4th light, suddenly, do you think, considering the temperature of the shaft, which was not over 63 degrees, that it is conceivable that the temperature of air would be raised to 200 degrees—that is, by the air coming out at a rate of 100 miles an hour, and so that about time ? *A* I think that the rate of the gaffery would have a cooling effect upon the current of air. I do not think it possible that such a temperature could be reached in anything like half a second.

20010. *Q* Do you think it could be reached at all, considering that the temperature of the sides of the chamber would be something like 63 degrees. Supposing these experiments had been carried on at the 4th light, where that fall is supposed to have occurred, do you think, as the law variation of the fall would not be over 63 degrees, that it would be possible to raise a temperature of 200 degrees ? *A* I do not think you could.

20011. *Mr. Atkins* ? *Q* You say the experiment could not be carried out there in that way ? *A* No.

Examined by Mr. Robinson —

20012. In regard to General Rule 4, have you any suggestion to make with a view of getting over the difficulty of eventually reporting gas coming from a gassy mine ? *A* It is a difficult question, but I think, after further consideration, it is preferable to alter General Rule 4. If the circumstances of a particular colliery require it, it will be preferable to have the matter dealt with in the special rules. What part of the rule do you suggest as showing a difficulty ?

20013. *Q* General Rule 4 would have to be altered, because you cannot make a special rule giving greater latitude than a general rule ? *A* No

20014. *Q* You have no suggestion to make ? *A* I cannot see any other way out of the difficulty. I would like to know what part of the rule you find a difficulty in.

20015. *Q* If you are to vary in certain collieries, General Rule 4 cannot be observed ? *A* You can report gas in every place, if necessary.

20016. *Q* You can report gas but the trouble is how to get the men to work there when you have reported ? *(No answer)*

20017. *Q* As to doing a shut in the ventilating district. You cannot fire a shut if gas has been reported ? *A* I do not read the rule in that way.

20018. *Mr. Robinson* ? *Q* If any colliery in the gas is reported to be present, then, under Rule 12, no shut can be fired unless a competent person has examined the place and has found that the gas has been cleared away ? *A* Is that what the gas has been cleared away a shut can be fired.

20019. *Q* Suppose you have a ventilating district 4 miles in length, and a deputy has reported a supply of gas at one particular part—then you cannot fire a shut ? *A* Not until the gas is removed.

20020. *Q* Suppose you cannot remove the gas ? *A* Then you cannot fire a shut.

20021. *Q* Is it any 10 miles away, on the outside side of where a hole gas is reported ? *A* The rule seems to be a little strange.

20022. *Mr. Robinson* ? *Q* Supposing you strike out the words, "And has found that such gas has been cleared away" ? *A* Would that meet the difficulty ?

20023. *Mr. Robinson* ? *Q* Is that sufficient to meet the case ? *A* Well, I think that would meet the case.

20024. *Q* Do you see any objection to striking out the words just mentioned ? *A* I see no objection to that.

20025. *Mr. Atkins* ? *Q* Subsection 7 of Rule 12 reads :

If on any mine, at either of the (supplies) under Rule 4 provided has, before a shut is fired, sufficient gas has been reported to be present in the ventilating district in which the shut may be fired, the shut shall not be fired—(3) unless a competent person, appointed as elsewhere, has examined the place where the gas has been reported to be present, and has found that such gas has been cleared away, and there is not in or near such place sufficient gas coming, or supposed to be coming, to make it unsafe to fire the shut.

We propose to strike out of this subsection the words "And has found that such gas has been cleared away." The subsection would then read, "Unless a competent person has examined the place where the gas has been reported to be present, and has found that there is not in or near such place sufficient gas, do." ? *A* I see no objection to that.

20026. *Mr. Robinson* ? *Q* If a shut is to be fired in a dry and dusty mine, it is required that all persons must be removed excepting ten. The rule says,

Not counting ten, no person is to be employed in attending to the ventilating furnace, steam boiler, engine, machinery, wind apparatus, signals, or horses, or in reporting the mine.

Do you not think that it would be better if no witnesses were subpoenaed. The idea, of course, is to limit the number of persons in the room? A. Quite so, that is the idea. So long as they do not exceed a certain number.

Q0017 Q. Would you have any objection to keeping the restriction to ten?

A0017 A. I think that the particular desire of the ten men employed should not be specified? A. That would do, so long as there are not more than ten men left in the room.

Q0018 Q. Coming to the number ten. It is a difficult matter to comply with that. You must know that, in a large mine, stopping perhaps on a Sunday, there are always more than ten men engaged in necessary work—work that it is absolutely necessary to perform? A. So far as I am concerned myself, I think that, in a large mine, where the removal of coal-stone would be easily secured, the difficulty is not insuperable. Stone are not regularly found on the haulage roads in the State. I think it would be undesirable to remove the restriction.

Q0019 Q. If the precaution is taken of waiting in the vicinity of a shot, and electricity is used in fire a shot, what is the reason for limiting the number of persons present to ten? A. All these operations are dependent upon human agency, and, if something goes wrong, as has been shown in other instances, there may be an accident involving the lives of men.

Q0020 Q. If there were 100 or 200 men standing against a wall, it would be differently, but I think there are a higher proportion of that nature on a day? A. I would not have such a thing taking place in the Metropolitan Mine, but I think it would be unwise to remove the restriction allowing ten persons only to be present. Standing in haulage roads has resulted in accidents causing deaths.

Q0021 Q. Yes. And I think that some of the things that have happened in some collieries are a warning to the Inspectors? A. I do not see how the Inspectors can control 300 or 400, it is a absolute responsibility.

Q0022 Q. I know that stone are protected in the haulage roads in the colliery over which I have experience, and I mention myself that I cannot see why the rule cannot be altered so as to provide for all persons ordinarily employed in the mine not being removed? A. Without specifying any number?

Q0023 Q. Yes? A. It would be difficult to agree to that so far as I can see.

Q0024 Q. You said something in your evidence about waste workings, and their relative importance to other parts of the mine. You consider them to be equally important in the working places. Now, there are no persons employed in the waste workings ordinarily speaking? A. By ordinary speaking there are not.

Q0025 Q. Therefore, the mortality of the coal and the value of waste does not directly affect the men ordinarily employed in a mine, as it would do in a working place? A. No.

Q0026 Q. And, therefore, the only importance of a waste working affecting the safety of persons employed in a mine, is the probability of finding gas? A. Yes, I think that is the only danger.

Q0027 Q. Therefore, there is not the same necessity for an Inspector supervising the waste workings, or supervising waste workings, in the same manner as there is for his supervising the working places? A. I did not wish to convey that the waste should be examined every day.

Q0028 Q. The question asked was something to the effect—how often did the Inspectors visit the waste workings, and so on? A. Yes, that was the question.

Q0029 Q. It seemed to suggest that the Inspector should visit, and I presume that the colliery officials should visit, the waste workings as often as they visit the working places? A. I do not wish to convey that idea.

Q0030 Q. Of course that idea is one that would suggest that a person had no sense of proportion as to the relative importance of the two places? A. I think a weekly examination of the waste workings should meet the case.

[At this stage Mr. J. Garlick, Secretary to the Commission, attended to take shorthand notes of the evidence and proceedings.]

Q0031 *Mr. Hesse:* There is a letter which Mr. Garlick has received from Mr. Murgoya, which reminds me of something which had written me before rapidly. I thought I had a recollection of some statement having been made by somebody to the effect that Mr. Murgoya calls attention to. He says:—

Mr. Hesse drew my attention to a paragraph which, I understand, appears in the evidence taken at the Inquest at Whitehaven. It states that Mr. Murgoya, the Government Mining Agent, obtained a sample of the coal dust, which did not show signs of caking. There is evidently some mistake here, as I have only examined twelve samples of the dust there, which are those referred to in my evidence given in the U.K. Bench.

Q0032 *Mr. Hesse:* Mr. Atkinson explained that it was Mr. Carl who actually made the previous analysis of dust from the 4th Left.

Q0033 *Mr. Hesse:* Q. The microscopic examination? A. Yes.

Q0034 *Mr. Hesse:* Some statement did appear in the depositions taken at the Coroner's Inquest, I think.

Q0035 *Mr. Hesse:* Yes, in the depositions. I asked Mr. Murgoya, when he was here, if he had made any examination of any dust besides those twelve samples, and he said "No", and Mr. Atkinson then said it was Mr. Carl. It is on page 34 of the Inquest.

Q0036 *Mr. Hesse:* Would you kindly read it?

Q0037 *Mr. Hesse:*

I noticed the dust, particularly on the surface and of No. 4 (left) rope road, there was some quantity of that, so Mr. Hesse went particularly. I think that part of the dust I now had been there; then I sent my what proposition, I took a sample of that dust, and had it examined microscopically, as one of about four inches, the Metropolitan Police the Inspector reported to me that there were no signs of caking. I took that dust from the face.

Q0038 *Mr. Hesse:* Where evidence is that?

Q0039 *Mr. Hesse:* It is Mr. Atkinson's. Then, here we, he spoke of sending those twelve samples to Mr. Murgoya, the Mining Agent, and I thought from that that it was the same person.

Q0040 *Mr. Hesse:* We can put a note to that evidence, which will prevent any confusion among.

Q0041 *Mr. Garlick:* explained that it would not be possible now to put such a note in the depositions taken at the request, as the printing was finished.

Q0042 *Mr. Hesse:* It might be put into that question that Mr. Atkinson answered we had an hour ago that the person who made that examination was Mr. Carl.

Witness—A. A. Adams, 22 March, 1905.

20343. *Mr. Lyngby* : Your Honor will remember my asking for an amendment of section 32, regarding the Special Rule being introduced on the suggestion of the miners. The Special Rule says:—

After special rules are established under this Act in any mine, the owner, agent, or manager, of the mine, may propose, in writing, to the Inspector of the district, for the approval of the Minister, any amendment of the rules or any new special rules.

and we ask that the miners should have the right to propose an amendment. I propose to ask Mr. Atkinson if he would approve of an amendment like this:—

After special rules are established under this Act in any mine, the owner, agent, or manager, or any employee or body of employees, of the mine may propose, in writing, to the Inspector of the district, for the approval of the Minister, any amendment of the rules or any new special rules.

Do you approve of that?

20344. *Mr. Brown Smith* : There is no need for "any body of employees."

20345. *Mr. Robertson* : I think there is no need for "any employee," any one employee, here it is the "body of employees."

20346. *Mr. Lyngby* : I want it to cover the case of mines applying to elsewhere, who might not be members of the Union, but who might want to make some suggestions, and I also want it to apply to the unions, who might want to send along recommendations.

20347. *Mr. Robertson* : I would never do to have the whole machinery of the Government and the colliery set on motion at the instance of one wheeler.

20348. *Mr. Lyngby* : It would not be that; or would only be a suggestion for the amendment of the rule, which could afterwards be discussed.

20349. *Mr. Smith* : Q. Would it not be better to make the suggestion—in the same way as Rule 20—by providing that a majority of the men employed in the mine may make suggestions for the amendment of special rules? A. Yes.

20350. *Mr. Lyngby* : But I can see that, in the case of the witnesses, they might not be able to get a majority of the persons employed in the mine, and they would not belong to a Union.

20351. *Mr. Smith* : But they can combine.

20352. *Mr. Lyngby* : Even if they combined they would not be a majority of the workmen employed in the mine.

20353. *Mr. Smith* : But they would get the miners to assist them.

20354. *Mr. Lyngby* : But they might not be able to get the workmen to act with them, as they are not members of the Union.

20355. *Mr. Smith* : Then they should join the Union at once.

20356. *Mr. Lyngby* : This is merely asking for a power to suggest, not to enforce.

20357. *Mr. Robertson* : But the power to suggest might mean a lot of work to the Government officers and in the colliery itself.

20358. *Mr. Brown Smith* : The suggestions have to go to the Inspector, then to the management, and, if the management object, the suggestions have to go to arbitration, and, as Mr. Robertson says, it would be ridiculous to throw all this machinery to be moved at any time by a single employee.

20359. *Mr. Smith* : That would never do.

20360. *Atkinson* : It should be "a majority of the workmen."

20361. *Mr. Brown* : If one employee wishes to have an alteration in the rules, there is always one place of machinery in which he can have recourse, and that is in the local press. He can get the matter published, and then it will get to the Union, and from the Union it will go on.

20362. *Mr. Lyngby* : But your Honor will see that a number of the employees are not members of the Union at all, witnesses and others may not be members of the Union, yet there may be a rule which, without any attempt to shift the legal responsibility in case of accident from the Company—the legal liability of the Company may be shifted by special rule.

20363. *Mr. Brown* : If I were something that really totally touched the interests of the employees, some action would probably take it up.

20364. *Mr. Smith* : That would be very unlikely, if the mine did not come into the Union.

20365. *Mr. Smith* : Do you think that if one, or a dozen, witnesses, who happened not to be in the Union, were to make certain representations to the Union, the Union would not take it up as a matter affecting the safety of the mine, and, therefore, affecting their interests.

20366. *Mr. Smith* : I should advise them to join the Union.

20367. *Mr. Robertson* : Do you think the Union would refuse to consider a suggestion from a person who did not happen to belong to the Union?

20368. *Mr. Smith* : If they took my advice, they would consider it, but then they might not do that.

20369. *Mr. Brown* : But they would not cut their throats to open their neighbour because their neighbour happened to have got a different sign.

20370. *Mr. Smith* : The probability is that, if a man who was not a suggester brought up a matter, and nothing was done a moment might bring it forward.

20371. *Mr. Lyngby* : I think the matter is altogether magnified—moving machinery? Writing a few letters is not "moving machinery."

20372. *Mr. Smith* : But if you had one employee empowered to move the whole machinery of the Act, you might have arbitrators every day.

20373. *Mr. Lyngby* : The Court is not contemplating anything unreasonable, the Court is contemplating something reasonable. It is not reasonable to suppose that men would move the machinery every day, and I think that they should have the right to make suggestions with regard to rules which may operate harshly and harshly upon them.

20374. *Mr. Robertson* : If a single employee thinks it is worth a suggestion, he may write to the Minister, and if the Minister thinks so, he can move the machinery, as provided in the Act.

20375. *Mr. Brown Smith* : Q. Mr. Atkinson, if any individual name writes to you, you give his communication no further consideration? A. Yes, certainly.

20376. *Mr. Brown* : Q. If it is unsatisfactory good, and you could not get it in many other way, you would refer it to the Minister? A. Yes.

20377. *Mr. Lyngby* : Q. I ask Mr. Atkinson if he approves of that suggestion of mine? A. I could not approve of it in that form.

20378.

19039. Q. Could you approve of it, in the words of Mr. Bishop, if it were altered to provide that a majority of the workmen employed in the mine could make suggestions for the amendment of special rules? A. Yes.

19040. Q. Then it would be "After special rules are established under this Act in any mine, the owner, agent, or Manager, of the mine, or a majority of the workmen employed in the mine for the following day propose in writing to the Inspector of the District, for the approval of the Minister, any amendment of the rules or any new special rules?" A. Yes.

19041. Mr. Lyngby: This is all, Your Honor.

19042. Mr. Bruce Smith: That will not be sufficient in itself, there will need to be a consequential amendment, because the Act afterwards provides for arbitration between the Inspector and the management, in which the men would have no say, unless further amendments are made.

19043. Mr. Bishop: I take it that, if this principle is admitted at all, the necessary amendments will be made.

19044. Mr. Bruce Smith: There will have to be consequential amendments further on.

19045. Mr. Bishop: Yes.

19046. Q. He now considers it absolutely necessary, where objections are lodged against any special rules, that they should be printed? A. I do not think it requires that. It is only the notice that is required to be printed, and the actual notice detailing the objections: that is not required in printing—never has been.

19047. Q. Under Rule 11, at the present time, "The proposed Special Rules, together with a printed notice specifying that any objection to the rules on the ground of anything contained therein, or omitted therefrom, may be sent by any of the persons employed in the mine to the Inspector of the district, . . . shall . . . be posted up" is not a printed notice required? A. The notice only refers to the posting up of the rules.

19048. Q. Why should the workman be compelled to go and get any matter printed at all? A. I do not think it is necessary myself.

19049. Q. So you see no reason to object to substituting the word "printed" at all? A. No, I do not see any objection to that.

[Examination concluded.]

19050. Mr. Wade: I would like to mention, in case we may have/consider to do so at any future time, that I have no analysis of certain parcels of dust taken from the No. 1 road by Mr. Dixon; but, although his results are not as strong as Mr. Muggers's, still the Commission have evidence of the loss of volatile matter in Mr. Muggers's evidence, and I do not propose to call Mr. Dixon on that particular point, unless the Commission consider it necessary.

19051. Mr. Dixon: It is a question for you, if Mr. Dixon's results are very different from Mr. Muggers's.

19052. Mr. Wade: I admit that Mr. Dixon's results show a slight loss of volatile matter. The lowest is something like 4 or 5 per cent.

19053. Mr. Bruce Smith: I see no objection, Your Honor, to Mr. Wade's putting the results before the Commission.

19054. Mr. Wade: If the Commission care to have them, I will do that, and hand the report in.

19055. Mr. Dixon: If the evidence that I have put in, you see, Mr. Dixon would like to have him, and he would have been subject to be asked questions and cross-examined, but it will only confuse matters to have this analysis brought in as a vague sort of way.

19056. Mr. Wade: Of course I can quite conceive, now, after the evidence yesterday that certain witnesses saw them coming out of the tunnel, that you can draw certain conclusions from that; and I do not want to burden the case by putting in Mr. Dixon's evidence.

19057. Mr. Bruce Smith: If the evidence of Mr. Dixon completely contradicted the evidence of Mr. Muggers, it would still leave the evidence of those given yesterday.

19058. Mr. Dixon: I do not think it will help us to put that report in; although we are quite ready to accept any evidence that would tend to modify or affect Mr. Muggers's evidence.

19059. Mr. Bruce Smith: I want to say, on behalf of Mr. Wade myself and Mr. Lyngby, that we recognize the very great fact and skill which Mr. Smith has displayed in the taking and supervising of these tests, because we have had occasion to find as fault whatever, except some very minor typing ones, with the work as done. And we know that, in some cases, we ourselves have not been very careful or conscientious, and the speed with which we have examined witnesses has frequently been very great, and therefore we would like to give this tribute of recognition of the ability and skill which he has shown in the whole matter.

19060. Mr. Dixon: Thank you. The members of the Commission fully appreciate the absolute conscientiousness of what you say. Mr. Gaskell's work has been superior to any other in all cases.

19061. We will appear now, but we will not be any date for a further meeting. If anything should crop up, of course everyone will have full notice. If addresses are actually to be made, we will be a day for hearing them.

19062. Mr. Bruce Smith: I have no intention of making an address.

19063. Mr. Wade: I do not want to put myself in a position which may, perhaps, be unfair to the company, and I do not want to burden myself upon the Commission at all, but, if there is any particular point that the Commission think I ought to address them upon, I would take it as a favour if they would tell me that. I do not want to labour over all the evidence given on this Commission, on the mere chance that the Commission wish to hear something.

19064. Mr. Dixon: My Lyngby, I understand you take the same view as Mr. Wade.

19065. Mr. Lyngby: Yes. I do not want to clutter myself upon you, Your Honor.

19066. Mr. Dixon: We will only say that it is not an intention.

19067. Mr. Lyngby: If, after the perusal of the evidence, there are any matters that the Commission wish to have any assistance upon I shall be glad to follow Mr. Wade's suggestion, and to give any information I can upon those particular points.

[The Commission then adjourned sine die.]

FRIDAY, 14 MARCH, 1935.

[The Commission met at Walsbying, at 9.30 a.m., and drove to Mount Kembla Mine.]

Present:—

C. E. R. MURRAY, Esq., D.C.J. (President).

D. A. W. ROBERTSON, Esq., Commissioner. | D. MITCHELL, Esq., Commissioner.

[Mr J. Gaskin, Secretary to the Commission, attended in his shorthand notes of the evidence and proceedings.]

30008. The Commission went to Mr W. Stafford's house, and were taken by him to the spot in his garden on the mountain, above the mouth of the mine tunnel of the mine, from which Mr Stafford saw the flame of the explosion, as related in his evidence.

30009. They then proceeded to the Mine Office, where there were also present:—

Mr W. Rogers, Manager, Mount Kembla Mine.

Mr D. Hutchins, Under-manager.

Mr D. HUTCHINS was sworn, and examined, as under:—

30010. *Ex. Ques.* What is your name? A. Daniel Hutchins.

30011. *Q.* And your position? A. Under-manager of Mount Kembla Mine.

30012. The left representation of Mr Hutchins was prepared until the Commission should be satisfied at No. 30 37.

30013. The Commission then proceeded to the weigh-bridge, where they inspected the signs of fire on the lamp-burners of the colts, and saw what repairs had been made to this colt, as mentioned previously by the damage done by the accident.

30014. The Commission then entered the mine by the main tunnel, accompanied by Mr Rogers and Mr. Hutchins, turned off up the No. 1 Right main level rope road, and turned through a cut-through into the No. 1 Right travelling road, up which they proceeded.

30015. At a point in the No. 1 travelling road, just before of the double doors on the left side of the 2nd Right, and opposite the air-venting, Mr Robertson made a test for gas with the hydrogen flame, and found 1 per cent. (25 per cent.) of fire duty in the air. (Note.—This air was the return air from the 2nd Right and 4th Right. A current of about 10,000 feet was passing at the time, as roughly estimated by Mr Rogers, and measured in by the other members of the party.)

30016. The Commission then proceeded along the No. 1 Right travelling road as far as the 4th Right, where they stopped and examined the stoppage which has been put in the heading near the accident, examined the door-buildings put on the left side of the 4th Right in the travelling road, and examined the cut-through opposite the 4th Right, between the travelling road and the rope road. The side of the rope road of the 4th Right, on the east side of the travelling road, was found to come to what might be called a thin point. It is roughly sketched herewith:—



30017. In the cut-through between the No. 1 Right main heading and the travelling road opposite the 4th Right, it was noted that there was one single door. Mr Rogers stated that the cut-through is not used by the miners for travelling purposes. The cut-through is turned off at both ends. Previously to the accident, Mr Rogers stated, there were two canvas doors in this cut-through.

30018. The Commission next proceeded to the top of the No. 1 Right travelling road. On arriving opposite what was Rogers' working place at the time of the disaster, but where a cut-through runs back No. 30, it was noted that, although the party were standing in an open roadway, smoke was issuing through the door in the cut-through from the level (No. 30) into the return air, instead of going to the return airway (4th Right). Thus, Mr Rogers pointed out, being not a portion of his evidence, in which he stated that the air in the 4th Right roadway was previously balanced, and might go either to the return air or to the return

20712. At the top of No. 1 Right bank heading (about a foot from the roof, right at the eastern corner of the face). Mr. Robertson tested with the hydrogen lamp, and found from 1 per cent. to 2 per cent. of frendrup (from 80 per cent. to 75 per cent.). A second test was made at the northern corner of the heading at the face, about a foot from the roof, with the same result, viz., from $\frac{1}{2}$ per cent. to 1 per cent. of inflammable gas was found.

20713. The party then went through the top cut through into the face of the No. 1 Right bank heading, and Mr. Robertson tested for gas on the western corner of the heading, about a foot from the roof, and found $\frac{1}{2}$ per cent. While making the test the hydrogen lamp went out, though the supply being immediately turned off. On the way down the main heading, at the top, Mr. John Morrison, deputy, joined the party, and, by Mr. Rogers' instructions, took the lamp to the lamp-station to be reset. At the same time the Commission adjourned for lunch.

20714. On Morrison's return, with the hydrogen lamp reset, after lunch, the Commission proceeded, by way of the top line of cut-throughs, to what was known as Mr. Stacey's working-place at the time of the disaster (No. 35 as plan), and, on trying for gas with the hydrogen lamp at the edge of the fall in this working-place, Mr. Robertson found a very slight trace of frendrup.

20715. The Commission then went into Alexander and James' head (No. 36 as plan), and went over the top of a fall behind James' pillar. Here Mr. Robertson again tested with the hydrogen lamp, and found 1 per cent. (25 per cent. of frendrup).

20716. The Commission then proceeded to head No. 37, where the pipe referred to by Mr. Robertson was supposed to having been found.

20717. At this point,—

Mr. D. HOPKINS, previously sworn, was further examined, as under:—

20718. His Honor? Q. Will you give me your account of how you came to find the pipe? Tell me what you did from the time you came to the place till the time you found the pipe, exactly where it was, and how it was lying? A. In company with Montrose, I visited this place—I think it was on the 15th of November. I had been in several times previous to that, but had never noticed anything. This day I got somewhere here [indicating the north side of a patch of water lying on the ground, in a roughly circular form, and more than 3 feet across]. I turned this lot of brattice off, it did not seem to have been dismantled. I looked down and gave that a kick, and the pipe was just there [pointing out the spot].

20719. Q. That would be at the northern end of the patch? A. Yes.

20720. Q. And ever it what had done here? A. I could not see the pipe until I kicked or moved my foot.

20721. Q. What did you move about? A. It seemed to be partially burned across, and I partially burned paper near it, too. It was lying so that I could not see it until I moved that [partially-burned corner] with my foot.

20722. Q. Was it not beyond the edge of where the water was lying? A. No.

20723. Q. How far did the water extend away beyond it from the main patch? A. There is the outside edge of the water [arranging the brattice so it was higher to indicate it made], and the pipe was somewhere here.

20724. Mr. Horditch? Q. Just on the outer edge of where the water was? A. Yes.

20725. His Honor? Q. And the pipe showed no signs of burning on its outer side? A. No.

20726. Mr. Horditch? Q. Did the brattice immediately covering the pipe show any signs of burning? A. That is the brattice there, I cannot say.

20727. His Honor? Q. Does any of that show any signs of burning? A. [After examining it?—Yes; some of it does.

20728. Mr. Robertson? Q. Did not it drop down when it was burnt? A. Yes.

20729. His Honor? Q. Was there any brattice laid up here shortly before that? A. I could not say.

20730. Mr. Robertson? Was there a brattice hanging across here?

20731. Mr. Morrison? No.

20732. Mr. Robertson? My impression is that there was.

20733. Mr. Horditch? What would you say brattice cloth hanging here for?

20734. Mr. Rogers? That is the top end of the head, you see; and there is brattice at the top ends of other heads. We are not very far from the 14th left, and there might be a screen here to stop the air from going down that way.

20735. Mr. Robertson? If there was a screen right across, where is the remainder of it? That may be a bit of it here [on top of the water], and I have an impression that there was a bit left here [on a prop].

20736. Mr. Morrison? There was nothing like that.

20737. Mr. Horditch? Q. Who would be the persons working across it here?

20738. Mr. Rogers? Thomas and Jones.

20739. Mr. Horditch? Q. And how far from here were they found?

20740. Mr. Rogers? About 100 or 150 yards. This is the cut-through where the road went out, and where the wheelbar would pass [indicating the cut through immediately to the north of the water].

20741. Mr. Horditch? Who was the wheelbar at the time?

20742. Mr. Morrison? Wilson.

20743. Mr. Horditch? Where was he found?

20744. Mr. Morrison? Down on the 4th left.

20745. Mr. Horditch? There is nothing that would lead you to believe that Stacey would be here with the pipe? [There was no answer in that question.]

20746. Mr. Horditch? How far is the 4th left from here?

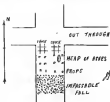
20747. Mr. Rogers? About 120 yards.

20748. His Honor? Q. Did there not a doubt about this the secretary produced a plan of the mine; and, on referring to it, it was found that the distance was about 180 yards?

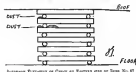
(Examination of Mr. Horditch concluded.)

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NOTE: As the party were leaving the boat, Mr. Robinson called Mr. Hunter's attention to some deposits of just partly melted, rather lumpy than had hitherto been found, which had lodged on the projecting rocks and sides of the logs composing a shoal or pier in the eastern side of the boat almost immediately opposite the first cut through to the north of the lake end of the boat. This was on the eastern side of the shoal. The following sketch shows the position of the shoal in the boat.



5094]. The following sketch shows the position of the dust on the shock —



Keywords: *Parenting stress; Parental self-efficacy; Parent-child relationships; Family functioning*

NOTE: Mr. Robertson and Mr. Hinzman then went on top of a hill on an old road between the 2nd Left and the 4th Left opposite the foot of one of the 4th Left road, and, on testing with the hydrogen lamp, found 4 one cent. (2th one cent.) of benzene.

001500 The Commission then went through the 6th Left road in the No 2 Right district, up Stafford's young haul, and turned up Stafford's landing, and at the face, which is 57 yards in from the young haul, Mr Robertson tested with the hydrogen lamp, which showed that there was 1 per cent. (10 per cent.) of fire-damp present in the atmosphere.

THE party next went into a heading which is being driven from Stafford's gang level towards the No. 1 Right wing level, which will, when completed, be the 10th left exposure off the No. 1. The heading is now driven a distance of 25 yards from the turn. At the face a tool was made with the hydraulic lamp, and a trace of *Re-dumia* was found.

NOTES The nest place varied was hard, No. 10 on the plan, between the pillars on the east of Bedford's young nest. Mr. Robertson here climbed on top of a hill at the south-western corner of the [new golf] and at a height of about 10 feet above the top of the mound (per cent. (1 per cent.) of the mound was directed with the [red] line.

NOTES: The Commission then went to the door of hard No. 41 (on the pump), and a test was made to the center of the tire up against the road, which resulted in 4 per cent. of the pump being found with the bottom on flame.

80700 The party then proceeded to the spread shaft, and, when trying to test for inflammable gas in the return air, the hydrogen flame went out through the supply of hydrogen being accidentally turned off.

1904 The Commission then came back to daylight by the short traveling road, and returned to Wellwood, proceeding to train the same night to Wellwood.

NOTE. — A check of the tests made by Mr. Robertson, and recorded above, by Mr. Rogers and Mr. Knott, were present, and either one or both of them, in addition to the members of the Commission, personally witnessed the making of the test.

WEDNESDAY, 15 MARCH, 1933

[The Committee met at the Metropolitan Colliery Company's Mine, at Halesbury, at 10 a.m.]

Present—

C. E. R. MURRAY, Esq., B.C.J. (PRESIDENT).

D. A. W. ROBERTSON, Esq., Commissioner.

D. MITCHELL, Esq., Commissioner.

Mr J. Jellens, Manager, Metropolitan Mine.

(Mr J. Garlick, Secretary to the Committee, was present to take notes of the evidence and proceedings.)

1932B. The Commission inspected the surface works, winding shaft, screens, winding engines, hoisting engines, battery (electricity), ventilation fan, and the mine plant.

2071B. After lunch the party proceeded underground, and inspected various workings, under the guidance of Mr. Robertson and Mr. Jellens. Special notice was taken of the large amount of vegetation, the quantity of dust on the walls and in the atmosphere, the high temperature in various portions of the mine, the occurrence of gas, the indications of creep in the pillars, and the thickness and number of the props as compared with those used at Mount Kembla, rendered necessary by the greater depth of the workings. It was also remarked that the mine working at long distances in the dust-laden atmosphere of high temperature over roads thick with dust seemed veritable hell to many members of the party.

2072B. The Commission returned to the surface about 4 p.m., and appeared for dinner.

2073B. The Commission met again at the mine at 7 p.m., when there were present, in addition to those already named, a number of officials connected with the mine. A number of tests were made of explosions fired in an atmosphere free from dust in an atmosphere containing Mount Kembla dust in suspension, and in an atmosphere containing Metropolitan dust in suspension. The apparatus used was a canvas pipe, 1 foot in diameter and about 5 feet long, supported by a horizontal piston about 2 feet from the ground. Each charge was placed 5 feet inside the pipe. When tests were to be made with the dust in suspension, a shovelful of dust was first led to the pipe, the charge of explosive was then led on this dust, and two shovelfuls of dust were laid over and surrounding the explosive. A pair of bellows had been placed in position about 80 feet away, round an angle of brickwork, and from this a 2-inch pipe was led, extending a distance of 5 feet into the pipe in which the charge was to be fired. The 5 feet of the small pipe which was inside what may be called the explosion chamber had a number of perforations all round it, through which the air could escape, and so left the dust in a cloud inside the explosion chamber. The bellows were blown for a sufficient time before each shot to thoroughly lift the dust and suspend it in the atmosphere. Charges of redmoss and carbonite were fired by means of a magnetic exploder. Charges of gunpowder were fired by means of hot fire. The operators stood about 20 yards away in such a position that they could get a good view of the results of the pipe without standing right in front of it. The night was very dark, light rain falling all the time. The following are particulars of the tests that were made, and the results obtained—

2074B. First Series—with clean pipe (no dust)—

- (a) One shot (3 oz.) redmoss. Result—Short, sharp flash of light seen reflected on inside of pipe.
- (b) One shot (2 oz.) carbonite. Result—Distinctly yellow flame and sparks thrown out about 1 foot from end of pipe.
- (c) One shot (4 oz.) gunpowder. Result—Strong yellowish-red flame and shower of sparks extending to about 30 feet from end of pipe, (noting) found burning for two or three minutes after explosion, about 20 feet from end of pipe (note: paper, late, etc.)

2075B. Second Series—with Mount Kembla dust in suspension, dust obtained at end of January from No. 1 Right roadway in Mount Kembla by Inspector Watson—

- (a) One shot (3 oz.) redmoss. Result—No flame, no light, no sparks, nothing but the sound of the explosion.
- (b) One shot (2 oz.) carbonite. Result—Very short, sharp, faint indication of light; no sign of spouts of dust.
- (c) Three separate shots of gunpowder (3 oz. each), as follows—
 (i) Result—A large yellowish-red flame blew out of the pipe for a distance of about 80 feet and rose in the air, accompanied by a large cloud of sparks of ignited coal-dust.
 (ii) A large yellowish-red flame blew about 24 feet out of the pipe, accompanied by a large cloud of sparks of ignited coal-dust. A mass of dry newspaper, which had been tied to the bottom of the pipe about 2 feet in front of the explosion pipe, and was exposed to the air for about three minutes before the firing of the charge, was blackened by the discharge, and was seen to be burning with a red smoulder in places without actual flame, after the cloud of smoke and sparks had cleared away.
 (iii) A large yellowish-red flame blew about 17 feet out of the pipe, accompanied by a shower of sparks of ignited coal-dust. The surface of the newspaper which remained unburned after the firing of (i) as referred to above and had remained exposed to a light run in the interval between the firing of (i) and (ii), was lit by the discharge of (ii), and continued burning with flame after the explosion had passed.

Note—The flame from these three spouts of dust extended about 3 feet high in the air.

2076B. Third Series—with Metropolitan dust in suspension—

- (a) One shot (3 oz.) redmoss. Result—Very faint, almost imperceptible indication of light seen reflected on inside of pipe by Mr. Jellens and Mr. Garlick, not seen by other members of party; no spouts of dust.
- (b) One shot (2 oz.) of carbonite. Result—No light, no ignition of dust.
- (c) Two shots (3 oz. each) of gunpowder—
 (i) A large yellowish-red flame, extending 17 feet from the mouth of the pipe, dust ignited, large shower of sparks, flame and sparks rose about 15 feet in the air; glow of heat from explosion distinctly felt by spectators 20 yards away.
 (ii) A large yellowish-red flame, extending about 19 feet from mouth of pipe, designated, large yellowish-red flame and sparks went up about 15 feet in the air; glow of heat from explosion distinctly felt by spectators 20 yards away.

(The Commission then adjourned.)

ROYAL COMMISSION OF INQUIRY RESPECTING THE MOUNT KENNELA COLLIERY DISASTER.

APPENDIX.

Exhibit No. 1.

Plan showing the workings, ventilation, &c., in the main or Bell seam, Mount Kenella Colliery, used during the evidence of T. E. Morgan, and marked by him.

Exhibit No. 2.

Plan showing the workings, ventilation, &c., in the main or Bell seam, Mount Kenella Colliery, by which W. Broadhead's evidence was illustrated at the Coroner's Inquest.

Exhibit No. 3.

Plan showing the workings, ventilation, &c., in the main or Bell seam, Mount Kenella Colliery, by which Matthew Frost's evidence was illustrated at the Coroner's Inquest.

Exhibit No. 4.

Plan showing the workings, ventilation, &c., in the main or Bell seam, Mount Kenella Colliery, by which John Harwood's evidence was illustrated at the Coroner's Inquest. (Put in 21/9/03.)

Exhibit No. 5.

Plan showing the workings, ventilation, &c., in the main or Bell seam, Mount Kenella Colliery, by which John Morrison's evidence was illustrated at the Coroner's Inquest. (Put in 22/9/03.)

Exhibit No. 6.

Plan showing the workings, ventilation, &c., in the main or Bell seam, Mount Kenella Colliery, by which David Evans' evidence was illustrated at Coroner's Inquest.

Exhibit No. 7.

Plan showing the workings, ventilation, &c., in the main or Bell seam, Mount Kenella Colliery, by which Adam Frost, junior's, evidence was illustrated at Coroner's Inquest.

Exhibit No. 8.

Plan showing the workings, ventilation, &c., in the main or Bell seam, Mount Kenella Colliery, by which Mr. Rogers' evidence was illustrated at Coroner's Inquest.

Exhibit No. 9.

Plan showing the workings, ventilation, &c., in the main or Bell seam, Mount Kenella Colliery, by which Mr. Jonathan May's evidence was illustrated at Coroner's Inquest.

Exhibit No. 10.

Plan showing the workings, ventilation, &c., of the main or Bell seam, Mount Kenella Colliery, by which David Pritchard's evidence was illustrated at Coroner's Inquest.

Exhibit No. 11.

Plan showing the workings, ventilation, &c., in the main or Bell seam, Mount Kenella Colliery, by which Adam Shallice's evidence was illustrated at Coroner's Inquest.

Exhibit No. 21.

Plan showing the workings, ventilation, &c., in the main or Bull room, Mount Kembla Colliery, by which the evidence of George Henney was illustrated at Curran's inquest.

Exhibit No. 22.

Plan showing the workings, ventilation, &c., in the main or Bull room, Mount Kembla Colliery, by which the evidence of Ernest Stafford was illustrated at Curran's inquest.

Exhibit No. 23.

Plan showing the workings, ventilation, &c., in the main or Bull room, Mount Kembla Colliery, by which the evidence of Mr. A. A. Affraser was illustrated at Curran's inquest.

Exhibit No. 24.

Letter from Mr. John Curran, of Woomera, to Mr. Lynght, explaining mistake in his evidence.
Mr. A. Lynght, Inspector, Wollongong. Woomera, 12 January, 1903.
Dear Sir,

I find, after careful consideration, that I made a mistake in my evidence before the Royal Commission in regard to the date on which I did not see the deputy coming with my plan to South Bull Colliery.

It was Monday night, 19th January, that I did not see the deputy and Friday, as I stated in my evidence in-
quiry. Trusting this will enable you to give a satisfactory explanation to the Commission, if necessary.

I remain, &c.,
JOHN CURRAN,
Woomera.

Exhibit No. 25.

Report on examinations of Mount Kembla Colliery on 25th and 26th of April and 1st of May, 1903.

On the underforesaid days occurred the air-courses and workings, &c., at the Mount Kembla Colliery at the 19th and 25th April and 1st May, 1903.

The following are the results of the main intakes and returns:—

Intakes.	Cubic feet.	Returns.	Cubic feet.
Main Day Shift	697,000	North side of Burners	697,000
Main Tunnel	11,000	South side of Burners	11,000
Travelling Road	30,000		
No. 1 Day Shift	42,700		
Total	110,000		110,000

The following are the results of the splits:—

Splits.	Volume of air.	No. men.	No. traps.	Booms.	Amount for men, traps, booms, per 100 cubic feet.
No. 1 Left	50,000	34	11	8	300
No. 2 Right	10,000	20	7	5	200
No. 3 Right	10,400	30	8	4	410
No. 4 Left	8,000	35	4	4	320
Main Tunnel	30,400	24	8	4	477
Total	108,800	103	30	20	

We find that all the splits given, machinery, ventilation, &c., are in accordance with the Coal Mines Regulations Act, and that the travelling road is in good order, with the exception of No. 3 travelling road, which we consider needs more attention as to the removal of timber and removal of water. The splits manager (deputy) on that day a few men travel that road, and that it could be done away with on one of that, and that as it is difficult to get timber in there and the water removed, we recommended the management to close (abolish it) it as a travelling road.

Yours faithfully,
J. DOWLING,
H. BRIDGER } Chief Inspectors.

Exhibit No. 26.

CORRESPONDENCE RE BURNING OF MICHAEL DALLAGHER.

(Department of Mines, 1877.)

Telegram from Inspector Farrow, Wollongong, to J. E. Harvey, Esq., Assistant Under Secretary for Mines.

Electric Telegraph Department, 1 Jan. 1903.

A miner named Michael Gallagher has been severely burnt by the lamp at Mount Kembla Colliery yesterday. I have received word this morning from the Manager. Shall investigate to-day.

J. E. HARVEY,
Inspector-General.

Replied tele. 1/1/03. — J. E. H.

Sent by M. T.

(Reported)

thoroughly well incorporated, and to be of such strength as, when exploded as a hand explosive as used at the Texas Office Building, Dallas, will give a round not inferior to that obtained with an equal weight of R. F. ² propellant, and to be in the form of grains of 1 mm to pass through a sieve of 15 meshes to the linear inch.

Precedence.

- (1) That this gas powder shall not be taken into or used in a mine except when contained together with certain materials in the composition of a gas by weight of 1 part by weight of sulphur to 5 parts, by weight of gunpowder, in a single parcel having never been in contact with oxygen (Kishland Brand) in which there shall intervene between the gunpowder and the residue of ammonium a thickness of such strength and character as will effectively prevent any admixture of the two.
- (2) That there shall not be taken into or used in a mine any mine or cartridge containing more than 1 lb. of this gas powder.
- (3) That no shot with the said gas powder shall be fired unless properly contained with an excess of stemming not less than would be sufficient for a charge of 1 lb. of ordinary gunpowder.
- (4) That the mine or cartridges shall be packed in thoroughly waterproofed wrappings, bags, or other receptacles, each containing not more than 1 lb. of gas powder; and
- (5) That in addition to the marking on the outer package required by an Order of the Secretary of State, made under the Espionage Act, 1917, and in form for the time being, each mine package shall bear the words "As defined in the List of Permitted Explosives", and, further, that each cartridge shall be clearly marked with the words "Permitted Explosive," and also with the name of the explosive, the name of the manufacturer, the date of manufacture, and the nature and proportion of the ingredients.

Standard Round Explosive No. 2. consisting in every 100 parts by weight of the finished explosive of not more than 70 parts and not less than 74 parts of grains of saltpetre, with not more than 14 parts and not less than 14 1/2 parts of charcoal, and not more than 11 parts and not less than 9 parts of pure distilled sulphur, and not in other ingredients, the whole being thoroughly incorporated, and to be of such strength as, when exploded as a hand explosive, as used at the Texas Office Building, Dallas, will give a round not inferior to that obtained with an equal weight of R. F. ² propellant, and to be in the form of grains of 1 mm to pass through a sieve of 15 meshes to the linear inch.

Precedence.

- (1) That the gunpowder shall not be taken into or used in a mine except when contained, together with pure saltpetre of sufficient in the proportion of one part by weight of saltpetre to 5 parts, by weight of gunpowder, in a single parcel having never been in contact with oxygen (Kishland Brand) in which there shall intervene between the gunpowder and the residue of saltpetre a thickness of such strength and character as will effectively prevent any admixture of the two.
- (2) That there shall not be taken into or used in a mine any mine or cartridge containing more than 1 lb. of the said gunpowder.
- (3) That no shot with the said gunpowder shall be fired unless properly contained with an excess of stemming not less than would be sufficient for a charge of 1 lb. of ordinary gunpowder.
- (4) That the mine or cartridges shall be packed in thoroughly waterproofed wrappings, bags, or other receptacles, each containing not more than 1 lb. of gunpowder; and
- (5) That in addition to the marking on the outer package required by an Order of the Secretary of State, made under the Espionage Act, 1917, and in form for the time being, each mine package shall bear the words "As defined in the List of Permitted Explosives", and, further, that each cartridge shall be clearly marked with the words "Permitted Explosive," and also with the name of the explosive, the name of the manufacturer, the date of manufacture, and the nature and proportion of the ingredients.

Standard Powder consisting in every 100 parts by weight of the finished explosive of not more than 40 parts and not less than 30 parts of saltpetre of ammonium, with not more than 14 parts and not less than 14 1/2 parts of charcoal, and not more than 11 parts of pure distilled sulphur, and not in other ingredients, the whole being thoroughly incorporated.

Precedence.

- (1) That this explosive shall be used only when contained in a case of paper thoroughly waterproofed with paraffin wax, and with or without a lead lining.
- (2) That no cartridge shall be used only with a detonator or electric detonator box of not less strength than that known as No. 1, or, the detonator or electric detonator box to be used shall possess an effective detonative strength as great as, or greater than, that of one containing 10 grains of a composition consisting in every 100 parts by weight of 50 parts of saltpetre of ammonium and 50 parts of saltpetre of potassium.
- (3) That in addition to the marking on the outer package required by an Order of the Secretary of State, made under the Espionage Act, 1917, and in form for the time being, each mine package shall bear the words "As defined in the List of Permitted Explosives", and, further, that each mine package shall be clearly marked with the words "Permitted Explosive," and also with the name of the explosive, the name of the manufacturer, the date of manufacture, and the nature and proportion of the ingredients.

Spont. consisting in every 100 parts by weight of the finished explosive of not more than 20 parts and not less than 10 parts of thoroughly purified chloroform, with not more than 14 parts and not less than 14 1/2 parts of saltpetre of ammonium, and not more than 10 parts of pure distilled sulphur, and not in other ingredients, the whole being thoroughly incorporated, and of such character and consistency as to be liable to explosion.

Precedence.

- (1) That this explosive shall be used only when contained in a case waterproofed with paraffin wax, and with or without a lead lining.
- (2) That the explosive shall be used only with a detonator or electric detonator box of not less strength than that known as No. 1, or, the detonator or electric detonator box to be used shall possess an effective detonative strength as great as, or greater than, that of one containing 10 grains of a composition consisting in every 100 parts by weight of 50 parts of saltpetre of ammonium and 50 parts of saltpetre of potassium.
- (3) That in addition to the marking on the outer package required by an Order of the Secretary of State, made under the Espionage Act, 1917, and in form for the time being, each mine package shall bear the words "As defined in the List of Permitted Explosives", and, further, that each mine package shall be clearly marked with the words "Permitted Explosive," and also with the name of the explosive, the name of the manufacturer, the date of manufacture, and the nature and proportion of the ingredients.
- (4) That this explosive, if not found as defined, shall be thoroughly burned to earth and suitable manner before use.

Spont Saltpetre, consisting in every 100 parts by weight of the finished explosive of not more than 10 parts and not less than 14 parts of thoroughly purified chloroform, with not more than 14 parts and not less than 14 1/2 parts of saltpetre of ammonium, and not more than 10 parts of pure distilled sulphur, and not in other ingredients, the whole being thoroughly incorporated, and of such character and consistency as to be liable to explosion.

Precedence.

- (1) That this explosive shall be used only when contained in a case waterproofed with paraffin wax, and with or without a lead lining.
- (2) That the explosive shall be used only with a detonator or electric detonator box of not less strength than that known as No. 1, or, the detonator or electric detonator box to be used shall possess an effective detonative strength as great as, or greater than, that of one containing 10 grains of a composition consisting in every 100 parts by weight of 50 parts of saltpetre of ammonium and 50 parts of saltpetre of potassium.

- (3) That an addition to the marking on the outer package required by an Order of the Secretary of State, made under the Espionage Act, 1917, and in force for the time being, such outer package shall bear the words "As defined in the Law of Permitted Espionage", and, further, that each inner package shall be clearly marked with the words "Permitted Espionage", to be used only with regard to the words "As defined in the Law of Permitted Espionage", the name of the manufacturer, the date of manufacture, and the nature and proportion of the ingredients; and
- (4) That the explosive, if in a fuses condition, shall be thoroughly thawed in a safe and suitable manner before use.

Medium Charge, amounting to every 100 parts by weight of the finished explosive of not more than 10 parts and not less than 10 parts of thoroughly purified nitro glycerine, with not more than 5 parts and not less than 10 parts of nitro-cellulose, carefully washed and purified, and not more than 10 parts and not less than 10 parts of nitro-cellulose, and not more than 10 parts and not less than 10 parts of wood meal and with or without not more than half a part of starch, and with or without other ingredients, the whole being thoroughly incorporated and of such character and consistency as not to be liable to detonation.

Provided—

- (1) That the explosive shall be used only when contained in a new waterproofed wrapper of parchment paper;
- (2) That the explosive shall be used only with a detonator or electric detonator (one of and less strength than that known as No. 4 (a), the detonator or electric detonator line to be used shall possess an effective detonation strength as great as, or greater than, that of one containing 15 grains of a composition containing in every 100 parts by weight of 10 parts of fulminate of mercury and 10 parts of nitro-cellulose of parchment);
- (3) That, in addition to the marking on the outer package required by an Order of the Secretary of State, made under the Espionage Act, 1917, and in force for the time being, such outer package shall bear the words "As defined in the Law of Permitted Espionage", and, further, that each inner package shall be clearly marked with the words "Permitted Espionage", to be used only with regard to the words "As defined in the Law of Permitted Espionage", the name of the manufacturer, the date of manufacture, and the nature and proportion of the ingredients; and
- (4) That the explosive, if in a fuses condition, shall be thoroughly thawed in a safe and suitable manner before use.

Heavy Charge, amounting to every 100 parts by weight of the finished explosive of not more than 10 parts and not less than 10 parts of thoroughly purified nitro glycerine, with not more than 10 parts and not less than 10 parts of nitro-cellulose, carefully washed and purified, and not more than 10 parts and not less than 10 parts of nitro-cellulose of parchment, and not more than 10 parts and not less than 10 parts of wood meal and with or without not more than half a part of starch, and with or without other ingredients, the whole being thoroughly incorporated and of such character and consistency as not to be liable to detonation.

Provided—

- (1) That the explosive shall be used only when contained in a new waterproofed wrapper of parchment paper;
- (2) That the explosive shall be used only with a detonator or electric detonator (one of and less strength than that known as No. 4 (a), the detonator or electric detonator line to be used shall possess an effective detonation strength as great as, or greater than, that of one containing 15 grains of a composition containing in every 100 parts by weight of 10 parts of fulminate of mercury and 10 parts of nitro-cellulose of parchment);
- (3) That, in addition to the marking on the outer package required by an Order of the Secretary of State, made under the Espionage Act, 1917, and in force for the time being, such outer package shall bear the words "As defined in the Law of Permitted Espionage", and, further, that each inner package shall be clearly marked with the words "Permitted Espionage", to be used only with regard to the words "As defined in the Law of Permitted Espionage", the name of the manufacturer, the date of manufacture, and the nature and proportion of the ingredients; and
- (4) That the explosive, if in a fuses condition, shall be thoroughly thawed in a safe and suitable manner before use.

Small Antir-Panzer Charge, amounting to every 100 parts by weight of the finished explosive of not more than 10 parts and not less than 10 parts of thoroughly purified nitro glycerine, with not more than 10 parts and not less than 10 parts of nitro-cellulose, carefully washed and purified, and not more than 10 parts and not less than 10 parts of nitro-cellulose of parchment, and not more than 10 parts and not less than 10 parts of wood meal and with or without not more than half a part of starch, and with or without other ingredients, the whole being thoroughly incorporated and of such character and consistency as not to be liable to detonation.

Provided—

- (1) That the explosive shall be used only when contained in a new waterproofed wrapper of parchment paper;
- (2) That the explosive shall be used only with a detonator or electric detonator (one of and less strength than that known as No. 4 (a), the detonator or electric detonator line to be used shall possess an effective detonation strength as great as, or greater than, that of one containing 15 grains of a composition containing in every 100 parts by weight of 10 parts of fulminate of mercury and 10 parts of nitro-cellulose of parchment);
- (3) That, in addition to the marking on the outer package required by an Order of the Secretary of State, made under the Espionage Act, 1917, and in force for the time being, such outer package shall bear the words "As defined in the Law of Permitted Espionage", and, further, that each inner package shall be clearly marked with the words "Permitted Espionage", to be used only with regard to the words "As defined in the Law of Permitted Espionage", the name of the manufacturer, the date of manufacture, and the nature and proportion of the ingredients; and
- (4) That the explosive, if in a fuses condition, shall be thoroughly thawed in a safe and suitable manner before use.

Anti-Aircraft Charge, amounting to every 100 parts by weight of the finished explosive of not more than 10 parts and not less than 10 parts of thoroughly purified nitro glycerine, and not more than 10 parts and not less than 10 parts of nitro-cellulose, carefully washed and purified, and not more than 10 parts and not less than 10 parts of nitro-cellulose of parchment, and not more than 10 parts and not less than 10 parts of wood meal, with or without not more than half a part of starch, and with or without other ingredients, the whole being thoroughly incorporated and of such character and consistency as not to be liable to detonation.

Provided—

- (1) That the explosive shall be used only when contained in a new waterproofed wrapper of parchment paper;
- (2) That the explosive shall be used only with a detonator or electric detonator (one of and less strength than that known as No. 4 (a), the detonator or electric detonator line to be used shall possess an effective detonation strength as great as, or greater than, that of one containing 15 grains of a composition containing in every 100 parts by weight of 10 parts of fulminate of mercury and 10 parts of nitro-cellulose of parchment);
- (3) That, in addition to the marking on the outer package required by an Order of the Secretary of State, made under the Espionage Act, 1917, and in force for the time being, such outer package shall bear the words "As defined in the Law of Permitted Espionage", and, further, that each inner package shall be clearly marked with the words "Permitted Espionage", to be used only with regard to the words "As defined in the Law of Permitted Espionage", the name of the manufacturer, the date of manufacture, and the nature and proportion of the ingredients; and
- (4) That the explosive, if in a fuses condition, shall be thoroughly thawed in a safe and suitable manner before use.

Anti-Submarine Charge, amounting to every 100 parts by weight of the finished explosive, of not more than 10 parts and not less than 10 parts of thoroughly purified nitro glycerine, with not more than 10 parts and not less than 10 parts of nitro-cellulose, carefully washed and purified, and not more than 10 parts and not less than 10 parts of nitro-cellulose of parchment, and not more than 10 parts and not less than 10 parts of wood meal and with or without not more than half a part of starch, and with or without other ingredients, the whole being thoroughly incorporated and of such character and consistency as not to be liable to detonation.

Provided—

- (1) That the explosive shall be used only when contained in a new waterproofed wrapper of parchment paper;
- (2) That the explosive shall be used only with a detonator or electric detonator (one of and less strength than that known as No. 4 (a), the detonator or electric detonator line to be used shall possess an effective detonation strength as great as, or greater than, that of one containing 15 grains of a composition containing in every 100 parts by weight of 10 parts of fulminate of mercury and 10 parts of nitro-cellulose of parchment);

(1) That the explosive shall be used only, when contained in a non-waterproofed wrapper of vegetable parchment.

- [illegible]

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Stigma lymanii [of the Civil War Legislation Act, 1860, is provided that] Secretary of State, as being required that any explosive or, it is likely to become dangerous, may by Order prohibit the use thereof in any more money than it means either absolutely or subject to conditions, and whether in possession of said power an Order has been made, issued. — The Government of the United States of America, 1st October, 1901.

I hereby, in possession of the power conferred on me by the civil system, make the following Order according to the Order (Article):

- (1) The Employees on Call Notice Order of the Jan Order, 1993, shall be amended, and shall take effect as if the employees named and defined in the Schedule to this Order were named and defined in the Schedule to that Order, and in all respects as if the Schedule to this Order formed part of the Schedule to that Order.

Dr. J. A. BARNES, President,
Dept. of Microbiology, University of Chicago

\mathbb{R}^n and \mathbb{R}^m are the real coordinate spaces of dimension n and m respectively.

Name of the following nutrient	Percentage weight	
	Min. amount (mg)	Per 100 g (mg)
Water-soluble	1000	0.14
Water-insoluble	4	0.1
Phosphate-soluble	100	0.1
Unsoluble	100	0.1
Unsoluble-soluble	100	0.1

(also recommended by committee as source items: 17 new items used and less than 10 new items for new staff or maintenance)

26. These two systems shall be used only when installed in a new, unoccupied structure of permanent nature.

- [illegible]

1000

	Est. mean (s.e.)	Est. (s.e.)
Stare physician	444	444
Stare patient	0	0
Physician's relative	444	444
Witnessed	0	0
Observed	0	0
Unobserved	0	0

the wood/mud and charcoal together to contain not more than 50 per cent, and not less than 10 per cent, by weight of wood/mud.

(ii) That the evidence shall be used only to the extent of its as now misinterpreted misquoting of paragraph, page 7.

- [illegible]

Exhibit No. 20.

Section showing results of explosion in part of No. 1 Main Level Rope Road, Mount Kembla Colliery, and during the examination of Mr. A. A. Alderson, on 15th February 1903.

Exhibit No. 21.

A lithograph plan of Mount Kembla Mine on which the positions of the working places, and the positions of the men who perished in the disaster, are shown. Put in during Mr. Alderson's evidence on 15th February, 1903.

Exhibit No. 22.

REPORT ON MOUNT KEMBLA COLLIERY.

A. A. Alderson, Esq., Chief Inspector of Coal Mines,—

Wollongong, 23rd February, 1903.

Sir,

For your information I have the honor to inform you that I inspected Mount Kembla Colliery on the 15th and 16th, and paid attention to the following matters, viz.—Floodings, State of Workings, Working and Report Books.—

Names of shafts.	Cubic feet of air per minute.	Number of men per bottom.	Cubic feet of air per minute for each man and bottom.
No. 4 Right	11,350	30	378
No. 4 Left	11,175	49	228
No. 3 Right	11,490	45	255
No. 3 Left	10,800	35	308
Main Tunnel	15,700	65	242

I found the above currents well distributed through the workings with a fair amount passing the end of each bottom. I recorded a large portion of the intake carbonaceous material, and found the same in good working order.

State of Workings.

I inspected No. 1 District, where a large number of pillars are being taken out, and ascertained that every care was taken by the management and the miners to ensure safety. I also found the other levels to be well timbered.

Report Books.

I examined the same and found that the colliery was managed in accordance with the requirements of the Coal Mines Act.

I have, Sir,
A. A. ALDERSON,
Inspector of Collieries.

Witness—A. A. Alderson. For the information of the Minister.—R. B. W. (for W. S. L. A. W.) Appl.—J. L. F. 20/100

REPORT ON MOUNT KEMBLA COLLIERY.

A. A. Alderson, Esq., Chief Inspector of Coal Mines,—

Wollongong, 11th May, 1904.

Sir,

For your information I have the honor to inform you that I inspected Mount Kembla Colliery and paid attention to the following matters, viz.—State of Workings, and Report Books, on the 11th April, and 15th October.

Floodings.

Names of shafts.	Cubic feet of air per minute.	Number of men and bottom.	Cubic feet of air per minute for each man and bottom.
No. 4 Right	11,354	30	378
No. 4 Left	12,400	47	264
No. 3 Right	10,400	45	231
No. 3 Left	11,000	35	314
Main Tunnel	15,000	47	319

I found the above currents well distributed round the workings and the bottom kept up to a reasonable distance from the face of the bottom.

State of Workings.

The end and sides of the working places were well covered with props and other suitable timbers. I examined a portion of the workings where pillars were being extracted, and found a good supply of props and timber for use when required.

Report Books.

I examined the report books, and found that the colliery was managed in accordance with the Coal Mines Regulation Act.

Working.

All the coal that comes out of the mine is weighed, and the measure are paid by the weight of each ship.

I have, Sir,
A. A. ALDERSON,
Inspector of Collieries.

Witness—A. A. Alderson. For the information of the Minister.—R. B. W. (for W. S. L. A. W.) 12-0-04

This document, Master Joseph Fort Green, on his oath, swears as follows:—I am a Government railway officer, and reside at Berridge Hill, in day, at about 4 p.m. I went to the South Mine, two minutes only were being brought to the surface. They then sighted dead bodies were brought up. I saw four bodies. One man at death was resting on all the back, John Lee died from a laceration of the back part of the skull. George Walker then died from a similar wound, also found Francis also William McLeish and William Spring. Benjamin Hall and Arthur Trevellick, lay upon the level was the cause of death in each case, and it must have been instantaneous, the injuries being severe. I have been called by a transmission cord of my to an underground passage; I have called several of such an accident before.

HENRY J. F. GREEN.

The 10th Aug, 1903.

A. B. BANCROFT, Counsel.

Exhibit No. 12

The Nipahla Corporation (Limited), Central Mine,
Broken Hill, N. S. W., 10 January, 1903.(Private).
A. A. Ashmead, Esq., Sydney.—

My dear Sir,

In reply to your letter of the 24th instant to the South Division of 1902, there was an explosion of explosives in that mine, there were dead of explosives except among some who were not connected with the accident. All the bodies were raised by the men of all through a comparatively narrow passage. A good examination of the case is a hollow and in some, the bodies being the shape which collapsed and the inside the style in which the men were standing working, of course, there was an such thing as being

I therefore think as I think could let you have copies of my reports of this matter.

Best wishes, yours, &c.

JAMES KERRARD

The Nipahla Corporation (Limited), Central Mine,
Broken Hill, N. S. W., 10 January, 1903.

A. A. Ashmead, Esq., Chief Inspector of Collieries, Sydney.—

Dear Sir,

Yours of 24th instant to hand. I did not think it necessary to reply to your note, as I think of the greatest that you would accept as reply in response.

I have, with you, that I am sorry you are now engaged, in all have not long but good as its relation.

Many thanks for your kind attention to what you, which I shall be glad to read again of when in Sydney.

Yours, &c.

JAMES KERRARD

Reports and returns to A. A. 4/03.

The Broken Hill South Mining Company (Limited)
The Mine, Broken Hill, 4 February, 1903.

W. H. J. Rice, Esq., Chief Inspector of Mines, Sydney.—

Dear Sir,

I beg to acknowledge receipt of your letter of 24th instant in which you informed me of the nature of the accident which took place in the mine in this mine in 1902 were found to be found through the action of the compressed air making through the pipe.

Inasmuch as it was reported by some people that there had been an explosion of gas, I carefully examined the bodies, but found no trace of burning or exploding.

I am, &c.

S. MAYNIE.

Underground Manager.

Exhibit No. 13.

ROYAL COMMISSION OF INQUIRY INTO THE ROYAL KERRALL COLLIERY TRAGEDY.

Cardiff, Glamorgan, 29 January, 1903.

The Chief Medical Officer, Welsh Department.—

My—

I have the honor, by direction of the above Commission, to acknowledge with thanks the receipt of the report by Mr. W. H. Marshall, Government Analyst, forwarded by you, on two specimens of coal dust taken from Berridge Hill Colliery.

In compliance with Mr. Marshall's suggestion, I am forwarding to-day by train, addressed to him, a quantity of (cleanly crushed) and from the face of the No. 1 Right Bank heading, the exact spot from which one of the samples of dust was obtained. The other sample of dust was obtained from a gang.

I am, &c.

J. G. BLACK,

Secretary to the Commission.

Department of Public Health, New South Wales,
Sydney, 12 February, 1903.

Outfit of Analysis.

The President, Board of Health.—

The sample of (cleanly crushed) coal (specimen, marked, or labelled) from the face of the No. 1 Right Bank heading received, 27th March, 1903, Colliery, Cardiff, from the Secretary of the Royal Commission of Inquiry, has been examined with the following result:—

	Per cent.
Hygroscopic moisture	6.64
Ultimate hydrocarbons	55.00
Fixed carbon	40.00
(Percentage of color) 74.40	
ash	11.50
	100.00

Specific gravity, 1.400

Weight, 2.1401 lbs, 121.5.

Number of cubic feet to the ton, 74

I am afraid my analysis will show little, if any, light as to the cause of the explosion.

WILLIAM M. HAMLET,
Government Analyst.

Wm. Rogers, Esq., Manager, Mount Kemble Colliery,—

4th March, 1901

Dear Sir,

With reference to the tin of coal-bits. After utilizing the 144, will you kindly cause to be printed on "Sample of coal-bits from Mount Kemble Colliery," and arrange it to be "Mount. J. R. Ross and Son, 445, Kent-street, Sydney," who have kindly consented to print it for the Department. Kindness and address (specify) as above.

Yours, &c.,
J. A. ATKINSON.

Wm. Rogers, Esq., Manager, Mount Kemble Colliery,—

14th December, 1900.

Sir,

With reference to the recent complaint to the Messrs R and J Rogers, on the 29th of last month, when they were unfortunately left three or four hours on the mine after their lamps had been consumed, and the circumstances which Mr. Ross has had with you in regard to some system being adopted in order to ascertain when all persons are out of the mine, I will be pleased to hear what you have decided to do in this matter.

I am, &c.,

J. A. ATKINSON,

Chief Inspector of Coal Mines.

Wm. Rogers, Esq., Manager, Mount Kemble Colliery,—

16th January, 1901.

Sir,

I have the honor to direct your attention to my letter of the 19th ultimo inquiring what provision you intend to adopt to avoid in future the possibility of any such unfortunate occurrence as that attended with the accident to the Messrs Rogers, on the Mount Kemble Colliery and to request that you will be good enough to let me have, at your early convenience, when arrangements you have made, or propose to make.

I am, &c.,

J. A. ATKINSON,

Chief Inspector of Coal Mines.

Wm. Rogers, Esq., Manager, Mount Kemble Colliery,—

16th February, 1901.

Sir,

I expect to have that on your working has been done at your colliery for establishing some system of knowing whether all the workers have left the mine. The matter, as you know, was first mentioned to you by Mr. Rogers in the month of May last, and having regard to the accident which place in the Messrs Rogers on the 29th November last, when they were unfortunately left in an exposed condition in the mine for some hours, previous to the management, it appears to me that the necessity for such a regulation might be applied strongly to you.

I also expect the accident which you have taken up by inquiring to answer any letters addressed to you on this subject, and I shall therefore be compelled to make an early interview with you in regard to it.

I am, &c.,

J. A. ATKINSON,

Chief Inspector of Coal Mines.

Wm. Rogers, Esq., Manager, Mount Kemble Colliery, Mount Kemble,—

15th March, 1901

Sir,

With reference to the inspection of your colliery by the Rules and myself on the 13th instant, as provided, I beg to enclose herewith copy of form of report under Section 14th, section 21, which I would, as given you should have on each face, say, of 50 or 100 pages. I write on circumstances of your premises all reports, which is one in the main mine, but placed in the mine, and report to say that alone to show that a quantity of old and cily waste, to which I directed the attention of the Rules, and its proposed to have it removed.

I beg to point out to you that making voluminous should be left, and on regard to this description. There are also a number of written plans surrounding the engine which I would suggest, should be removed. You may see the reason that one on two accidents have happened in these Rooms in connection with the use of such engines, and for your information I have pleasure to enclose particulars, and form that you will adopt similar precautions to suggested in the Special Regulations.

I am, &c.,

J. A. ATKINSON,

Chief Inspector of Coal Mines.

Exhibit No. 42.

OVERSEA COLLIERY

We, the undersigned, certify that the following is a fair and true report of an examination of the above mine, made on the 15th and 16th September, 1900.

We inspected the following roads, return-airways, working place, and engine place, and found them safe and free from signs of any serious danger. There is a portion of the travelling road where the steam pump is located, and in very bad, and we recommended that the men be allowed to travel the engine-road by the shaft, and to enter the travelling road at that point. The engine-road is connected to 10,000 cubic feet, the Central intake registered 10,000 cubic feet, whilst the air to the bottom the total return air was 20,000 cubic feet, showing a difference of 10,000 cubic feet, and was not the same. The intake air is 10,000 cubic feet registered in the Main Shaft. Central 10,000 cubic feet in the Main Shaft, and 1,000 cubic feet in the Main Dip. The bottom registered 20,000 cubic feet. There are 10,000 cubic feet, the bottom, and they are supplied in the main shaft with an average of 10,000 cubic feet each. There are 10,000 cubic feet and have been in the Main Shaft getting an average of 10,000 cubic feet. There are 10,000 cubic feet and have been in the Main Dip. The engine-road quantity of air for Main Dip and Main Shaft was 10,000 cubic feet, and on the 1,000 cubic feet supplied the Main, and also the working place on Main Dip are only get a quantity of 1,000 cubic feet of air per minute for 10,000 cubic feet each, both in bottom, giving an average of 10,000 cubic feet per road. In the Main Dip there is only three men and 1,000 cubic feet per minute.

It should be mentioned that the atmosphere is not so perfect as it is in the part of the bottom in which is the main glass of stop, having no heavy air currents to draw the impurities of this region. The management are actively preparing a new ventilation fan at great cost to increase the ventilation.

There was a good supply of timber, and no other signs the mine is in an satisfactory condition.

16th September, 1900.

Witnessed copy

JOHN FRYER, Chief Inspector.

ROBERT VARRY, District Secretary.

D. RITCHIE, District Secretary.

Miners District Council of Australasian Labour Federation.

James Davies, Esq., Mine Inspector, Newcastle,—
Harrington District Council, A.L.F., (S.E.W. Portland Council, Ball),
16th September, 1900

Dear Sir,

I hereby enclose a copy of Chief Inspector's report of the Oversea Colliery, and I respectfully direct your attention to the same.

You will observe that the Chief Inspector's report on the ventilation shows the Main Dip as being supplied with less than the minimum quantity allowed by the Coal Mines Regulations Act.

I am, &c.,

D. RITCHIE,

District Secretary, Ball.

See below of the Oversea mine.

Witness

Massachusetts District Council, A.F.L.-N.E.F. Executive Council, Boston.

The Hon. J. L. Payne, Minister for Home Affairs.

On behalf of the General Motors, I have the honor to submit, by the submission of your Department, the attached copy of Check Inspector's report, which shows the conditions supplied to be better the minimum quality allowed by the Ford Motor Engineering, Inc.

1. Mr. [REDACTED]

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Telephone from Madison addressed to James Brown, Esq., Executive Coal Mines

New South Wales Post and Telegraph, Colonial and International News,
17th November 1900

These results suggest a positive relationship between the use of the Internet and the use of the Internet for research purposes.

Dr. J. STEINBOCK
 1110 East 17th Avenue, Denver, Colorado

Revised and Expanded in Volumes on Child Development and Child Psychology

A. A. Allmonster, Eng. - Chief, Department of Civil Marine -

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In accordance with your instructions of the 17th instant, viz., to furnish report of same as completed re-

I have the honor to inform you that I made a careful inspection of the complaint, and have with pleasure concluded that I found the complaint to be a very satisfactory one. Therefore, the action

Before commencing my inspection I met the Rabot Family one of the drink inspectors who made the attached report on 22 November 1944. I was 47 years and reported him to accompany me while I look for some inspectors of reputation of the community. For some time, we and on such was observed the working of the car market and making deposits of the various car owners. I was then explain after I look the first measures on it I found that in terms of my 40 other "very poor" running family, as well as the, they are a neighborhood and look the neighborhood around me.

<http://www.elsevier.com/locate/jmr>

Instrumentation	Is the music an act of violence?	Violence is more entertainment	Violence leads to more peace, violence is just part of what we need to live
The "beat" The "beat" Rap Black records	1 1 1	67 64 68	100 100 99

[illegible]

I took the above readings at a point about 5 miles from the center of the work up place, and found the same fairly well maintained, as I did when I was up to a considerable distance from the base of the hills.

Robert Harris, whose apartment, informed me that he was also contacted that day, mentioned they had taken the apartment of hands, and did not give a true measurement and he would return John Brown, the other check against, of the

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

As regard to the request that the income be allowed to tax at the income paid in the "Black" — In my opinion this is an unreasonable request, as the income would have to average off the tax being paid a decrease of 10 cents—where the holder is in profit—then being left with a net of 10 cents per acre, and above 100 tons of

Interception of the road edges had no effect. A small pumping engine is placed at the side of the trailing end. The road is 1.5 m high at 100 m wide. There are two doors placed 10 m apart, separating the intake and the return air flow.

2. Inside a regular of the temperature at the chest, position of the travelling road, and the thermometer stand at 80°, it is shown the same time, both the thermometers outside the heated bed and a constant of 25°.

The new box, which has been in design and construction for some time, is now being completed, and will be in working order at about the same time that the total roll of the new counting box, with all its accessories, is shipped.

Journal of Management Inquiry 22(1)

CHANG SUNGHOON, HANJUN M. YOUNGKANG at THE NATIONAL CENTER FOR IMMEDIATE RESPONSE & EMERGENCY RESPONSE
Public Relations, Department of Media, ...
1141, Seoul, Korea, 150-747

It appears that on the 11th or 12th around the above temperatures occurred 80) cubic feet of air gas was in the mass of the stone, and on the 13th around 100 cubic feet was in the same mass.

"Some time ago I was employed as a representative of the company in which I worked, made by the Manager of this railway to Mr. Rowan and myself, after the company had just acquired an extensive tract of real land, and would in consequence require more ground for its operating purposes. In purchasing the necessary land to purchase a line, which is now in course of construction, we were authorized, under the authority of the company, by Mr. Rowan and myself.

Strongly regretted, however, the fact that the candidate is not eligible at least as an ex-officio member. Such a loss to our group should be addressed to the strength of the club which he will be glad enough to serve. His last remarks were very wise and should be remembered.

A. D. ALLEN, TREASURER

Abstract

For the information of the Member The Manager may be written to as suggested by Mr Ashburne, see page 70.

Richardson, M. (1988) *ibid.* 51

U. Rehder, Bonn, Institut für Statistik, Universität Bonn, Germany, reher@statistik.uni-bonn.de

¹Subject: "Formulating an outline of the Criminal Justice System, a part of the British Institute's report, which shows its conditions, intended to be before the Government Council, drafted by the Great Britain Parliament Act."

Reply. —The Manager of the General Delivery has been written in, asking that the law which is now in course of revision be placed on file with us, in order to enable

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1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

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Exhibit No. 43.

A. J. Anderson, Esq., Chief Inspector of Collieries.—

5 May, 1903.

Sir,
In my capacity of chief inspector, I visited the South Welland Colliery yesterday, and, in company with my representative Mr. J. Brown, saw a large number of the colliers in the act of working, which to me seems to be a standing matter to the three of the workmen employed underground at that colliery. Although the course of the work has been slightly altered, and formed for a short distance, the bearing is of such a temporary character, and, as we descend a little farther, finding taking the same or some other direction, it seems to be that for work. It is evident, then, being only about 40 yards, but, in every the nature of order that such men have to go to work of heavy lifts. My attention was drawn to the fact that only very lately the men were a distance of about only about 100 yards from the surface, and it took a week to pump the water out again. And although some attempts have been made to 100 yds, and make the hole straight, it seems to be only of a temporary character, as there was a large tunnel straight hole, about 10 yards in diameter, seemingly right through the old workings, caused by the passage of water, although the hole must have been very light. I refer to opening for drawing your attention to this matter, for I have a strong impression that a mine safety may take place at any time during the summer.

Yours, &c.
W. M. BOWEN.

Anthropologist, BUREAU. Please register and return. Mr. Inspector Dixon.—A.S.A. (per C.A.B.), B.C., 1903.
Serial—J. 2, 14, 1903.

New South Wales, Civil Police Office, Department of Mines and Agriculture, Sydney, 26 May, 1903.

Mr. W. Brown, District Chief Inspector, Colliery Employers' Association, Newcastle.—

South Welland Colliery.

Sir,

With further reference to your letter of the 23d instant, addressed to me, and which I received on my return to the Department, I may mention that the subject matter of your letter had already engaged the attention of the Inspector of the Colliery. Mr. Brown, your representative of this mine.

The last paragraph of your letter was as follows:—"I refer to opening for drawing your attention to this matter, for I have a strong impression that a serious mining may take place at any time during the summer." and in making over the past report of yourself and the Bureau of the South Welland Colliery, dated the 15th inst., I do not think any reference is made to any existing or apprehended danger; and in consequence of this, it was not mentioned on the part of the Manager to send a copy of such report to the Inspector of the district. It is evident, therefore, that there is a considerable difference between the letter addressed to me and your report with reference to any existing or apprehended danger, and I beg to suggest that in future, your well, as required by the rules, make in the book, kept at the colliery for that purpose, a true report of the result of the inspection, so that general notice may be taken by the Manager, and it required of him by the terms of Clause 10, in the event of any existing or apprehended danger being reported.

I do not desire in any way to find fault with the contents of your letter, and trust that by drawing your attention to a matter which has apparently escaped your observation, it will be in the future attended to.

I have, &c.

A. S. STEPHENS,
Chief Inspector of Coal Mines.

Exhibit No. 44.

Southern Colliery Chief-inspector's Report.

We examined this mine on the 25th, 26th, and 27th instant, and found it well ventilated and the air somewhat well-maintained. On the 25th, the surface of inspection was interrupted by a fire in the 4th district, which originated in an old lamp on the right of No. 4 runner level, about, as far as we could learn, by a small accumulation of gas coming in contact with the naked light of a workman who was maintaining the runner stoppage at the level and a lamp was seen to be in contact with the fire, and it was finally extinguished the same evening. The examination is upon the 26th and 27th inst. at right, though with a little more, the temperature being 70°. We have the Manager's word that, as soon as he can get a water supply, he will deal with the dust nuisance effectively. The breathing on the mine made is bad, owing to the large quantities of steam and fog about; and a more efficient method used in dealing with this nuisance. We also observed the use of the old fire on the west side, and found the temperature normal, and a good current of air breathing over the broken ground. A good supply of timber was available, and in all other respects the mine seemed to be well found. The following are the details of the inspection:—

West Side.

- No. 1 split intake, 8,500 cubic feet per minute, for 40 men, 3 boys, and 2 horses, giving each 212 cubic feet per minute. Temperature, 65° to 70°.
- No. 2 split, 11,750 cubic feet per minute, for 40 men, 3 boys, and 2 horses, giving each 293 cubic feet per minute. Temperature, 65° to 70°.
- No. 3 split intake, 11,000 cubic feet per minute, for 40 men, 3 boys, and 2 horses, giving each 275 cubic feet per minute. Temperature, 65° to 70°.
- No. 4 split intake, 11,000 cubic feet per minute, for 40 men, 3 boys, and 2 horses, giving each 275 cubic feet per minute. Temperature, 65° to 70°.
- No. 5 split intake, 11,000 cubic feet per minute, for 40 men, 3 boys, and 2 horses, giving each 275 cubic feet per minute. Temperature, 65° to 70°.
- No. 6 split intake, 11,000 cubic feet per minute, for 40 men, 3 boys, and 2 horses, giving each 275 cubic feet per minute. Temperature, 65° to 70°.
- No. 7 split intake, 11,000 cubic feet per minute, for 40 men, 3 boys, and 2 horses, giving each 275 cubic feet per minute. Temperature, 65° to 70°.
- No. 8 split intake, 11,000 cubic feet per minute, for 40 men, 3 boys, and 2 horses, giving each 275 cubic feet per minute. Temperature, 65° to 70°.
- No. 9 split intake, 11,000 cubic feet per minute, for 40 men, 3 boys, and 2 horses, giving each 275 cubic feet per minute. Temperature, 65° to 70°.
- No. 10 split intake, 11,000 cubic feet per minute, for 40 men, 3 boys, and 2 horses, giving each 275 cubic feet per minute. Temperature, 65° to 70°.

East Side.

- No. 1 split intake, 11,000 cubic feet per minute, for 40 men, 3 boys, and 2 horses, giving each 275 cubic feet per minute. Temperature, 65° to 70°.
- No. 2 split intake, 11,000 cubic feet per minute, for 40 men, 3 boys, and 2 horses, giving each 275 cubic feet per minute. Temperature, 65° to 70°.

W. M. BOWEN
JOHN STEPHENS } Chief Inspectors

Exhibit No. 45.

Lithograph Plan of Mount Kosciusko Mine, showing the ventilation of the mine at the time of the disaster, prepared by Mr. Warburton, Surveyor, Mount Kosciusko Mine, put in during Mr. Warburton's residence, 15th February, 1903.

Exhibit No. 46.

Rough North drive by Mr. Leibel of Fourth Right Pillars in Mount Kosciusko Colliery on the same to left the Mine, June, 1903, put in during his examinations, 2nd March, 1903.

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

Report of Clerk Inspection, made on the 14th and 15th of June, 1888, in connection with the Cabinet.
Wallford Colburn, Master, Keosau.

We consumed our stockpiles of Fred's brand, and found an intake of 11,000 feet of air travelling per month. This is divided into two splits and supplied 82 tons, 12 tons, and 11 tonnes, giving an average of 100 lbs each. In No. 1 left hand straight down intake is on the right side of the present working face, we found an intake of 4,000 feet per month, divided into two splits of 20 inches, 2 inches, and 12 inches. These are approximate figures of 100 lbs each.

In No. 3 and No. 4 strata are contained no more than 1,000 ft. This supplied 100 men 4 horses, 4 dogs giving an average of 100 to each. This shows that to give a total of 10,000 cubic feet for the supply of 100 men, dogs and horses, being an average of 100 feet to each of all in each man, dog, or horse. The lowest region of *Strophomena* was 60', the highest was 11' in McElroy's horizon (about 4000 ft. from the base of the base), and 10' in the *Strophomena* No. 4.

We tested a version of this argument at the Institute of All-India Studies, drawing a difference at the outside world. In the main on the working plane of *Abhidharma* has, partial which, however, is allowed to work into the thought down. But, the rest of space that there is a linkage through the narrow space, whereby the air gets into the *Pratibh* through without new outside the within alone.

[illegible]

The commercial fish is largely gone for good, but the large sea-bass is still there, and the smaller cod is being landed in Hella, Papeete, and Whangarei. The sea-bass also occupies the catches of net or line catching as the line end of the season, is largely absent of season but not at the mouth of each boat of beachers.

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P's wife does not acknowledge the marriage of his father as corresponding and standing at its full rate of recognition under Wills J.F. and James Law.

Report of Check Inspections made on the 4th and 5th of June, 1901, at the Delaware Wolfenbarger Collingery,
Mount Kearsy, by John Weiss and James Smiley

We conducted our investigation at 25, 50, 100, and 200 mg/kg body wt of air per minute breathing by the sample of seven mice, one day and one hour, being an average of 227 values per case.

For the 100,000 lbs of equipment and 1,000,000 sq ft of air conditioning for the supply of electric power, more money has, and more times, been at a price of \$10 million per sq ft. This comparison is made on the basis of the 100,000 lbs of the system that will be total gross the required amount of plant investment, it is not an indication of the world, but it is in the hands of the world's largest and most advanced in the world's largest.

the 1990s, the supply of the world's major metals has been under increasing pressure. The supply of iron ore, for example, has been under increasing pressure since the 1980s, when the world's major iron ore producers (Australia, Brazil, China, India, and South Africa) began to export more iron ore to the rest of the world. The supply of iron ore has been under increasing pressure since the 1980s, when the world's major iron ore producers (Australia, Brazil, China, India, and South Africa) began to export more iron ore to the rest of the world.

¹⁰ We estimated the 100 values based on the 1984 oil boom, and found 4,500 cubic feet for the supply of twenty-eight men, six boys, and 100 women, based on averages of 100 values for each month.

We have killed the whole lot of our chickens and saved them in fairly good order, and we started the frozen crop today. The larger amount of 75,000 is after last time killing per acreage, being 45,000 which best in terms of very progressive results. We also raised fairly large number of eggs, and found that the eggs were in good order. I am very much interested in the

Step 2: I turned on my working place, and found it a good example of thinking, with the connection of both the people. A large amount of it is a working place, and many are a connection of people, which will go on by computer.

The 10 applications referred complete to the other 100,000,000, and found it all ready to hand, but we wish to call attention to General John W. of the United States, who, perhaps the two countries to all angles.

**ALL INFORMATION CONTAINED
HEREIN IS UNCLASSIFIED**

Notes.—Three cells were considered viable by 100% and 50%

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

JOINT COMMISSION, 1994-1995, 1996-1997, 1998-1999, 2000-2001, 2002-2003, 2004-2005, 2006-2007, 2008-2009, 2010-2011, 2012-2013, 2014-2015, 2016-2017, 2018-2019, 2020-2021, 2022-2023, 2024-2025, 2026-2027, 2028-2029, 2030-2031, 2032-2033, 2034-2035, 2036-2037, 2038-2039, 2040-2041, 2042-2043, 2044-2045, 2046-2047, 2048-2049, 2050-2051, 2052-2053, 2054-2055, 2056-2057, 2058-2059, 2060-2061, 2062-2063, 2064-2065, 2066-2067, 2068-2069, 2070-2071, 2072-2073, 2074-2075, 2076-2077, 2078-2079, 2080-2081, 2082-2083, 2084-2085, 2086-2087, 2088-2089, 2090-2091, 2092-2093, 2094-2095, 2096-2097, 2098-2099, 2100-2101, 2102-2103, 2104-2105, 2106-2107, 2108-2109, 2110-2111, 2112-2113, 2114-2115, 2116-2117, 2118-2119, 2120-2121, 2122-2123, 2124-2125, 2126-2127, 2128-2129, 2130-2131, 2132-2133, 2134-2135, 2136-2137, 2138-2139, 2140-2141, 2142-2143, 2144-2145, 2146-2147, 2148-2149, 2150-2151, 2152-2153, 2154-2155, 2156-2157, 2158-2159, 2160-2161, 2162-2163, 2164-2165, 2166-2167, 2168-2169, 2170-2171, 2172-2173, 2174-2175, 2176-2177, 2178-2179, 2180-2181, 2182-2183, 2184-2185, 2186-2187, 2188-2189, 2190-2191, 2192-2193, 2194-2195, 2196-2197, 2198-2199, 2200-2201, 2202-2203, 2204-2205, 2206-2207, 2208-2209, 2210-2211, 2212-2213, 2214-2215, 2216-2217, 2218-2219, 2220-2221, 2222-2223, 2224-2225, 2226-2227, 2228-2229, 2230-2231, 2232-2233, 2234-2235, 2236-2237, 2238-2239, 2240-2241, 2242-2243, 2244-2245, 2246-2247, 2248-2249, 2250-2251, 2252-2253, 2254-2255, 2256-2257, 2258-2259, 2260-2261, 2262-2263, 2264-2265, 2266-2267, 2268-2269, 2270-2271, 2272-2273, 2274-2275, 2276-2277, 2278-2279, 2280-2281, 2282-2283, 2284-2285, 2286-2287, 2288-2289, 2290-2291, 2292-2293, 2294-2295, 2296-2297, 2298-2299, 2300-2301, 2302-2303, 2304-2305, 2306-2307, 2308-2309, 2310-2311, 2312-2313, 2314-2315, 2316-2317, 2318-2319, 2320-2321, 2322-2323, 2324-2325, 2326-2327, 2328-2329, 2330-2331, 2332-2333, 2334-2335, 2336-2337, 2338-2339, 2340-2341, 2342-2343, 2344-2345, 2346-2347, 2348-2349, 2350-2351, 2352-2353, 2354-2355, 2356-2357, 2358-2359, 2360-2361, 2362-2363, 2364-2365, 2366-2367, 2368-2369, 2370-2371, 2372-2373, 2374-2375, 2376-2377, 2378-2379, 2380-2381, 2382-2383, 2384-2385, 2386-2387, 2388-2389, 2390-2391, 2392-2393, 2394-2395, 2396-2397, 2398-2399, 2400-2401, 2402-2403, 2404-2405, 2406-2407, 2408-2409, 2410-2411, 2412-2413, 2414-2415, 2416-2417, 2418-2419, 2420-2421, 2422-2423, 2424-2425, 2426-2427, 2428-2429, 2430-2431, 2432-2433, 2434-2435, 2436-2437, 2438-2439, 2440-2441, 2442-2443, 2444-2445, 2446-2447, 2448-2449, 2450-2451, 2452-2453, 2454-2455, 2456-2457, 2458-2459, 2460-2461, 2462-2463, 2464-2465, 2466-2467, 2468-2469, 2470-2471, 2472-2473, 2474-2475, 2476-2477, 2478-2479, 2480-2481, 2482-2483, 2484-2485, 2486-2487, 2488-2489, 2490-2491, 2492-2493, 2494-2495, 2496-2497, 2498-2499, 2500-2501, 2502-2503, 2504-2505, 2506-2507, 2508-2509, 2510-2511, 2512-2513, 2514-2515, 2516-2517, 2518-2519, 2520-2521, 2522-2523, 2524-2525, 2526-2527, 2528-2529, 2530-2531, 2532-2533, 2534-2535, 2536-2537, 2538-2539, 2540-2541, 2542-2543, 2544-2545, 2546-2547, 2548-2549, 2550-2551, 2552-2553, 2554-2555, 2556-2557, 2558-2559, 2560-2561, 2562-2563, 2564-2565, 2566-2567, 2568-2569, 2570-2571, 2572-2573, 2574-2575, 2576-2577, 2578-2579, 2580-2581, 2582-2583, 2584-2585, 2586-2587, 2588-2589, 2590-2591, 2592-2593, 2594-2595, 2596-2597, 2598-2599, 2600-2601, 2602-2603, 2604-2605, 2606-2607, 2608-2609, 2610-2611, 2612-2613, 2614-2615, 2616-2617, 2618-2619, 2620-2621, 2622-2623, 2624-2625, 2626-2627, 2628-2629, 2630-2631, 2632-2633, 2634-2635, 2636-2637, 2638-2639, 2640-2641, 2642-2643, 2644-2645, 2646-2647, 2648-2649, 2650-2651, 2652-2653, 2654-2655, 2656-2657, 2658-2659, 2660-2661, 2662-2663, 2664-2665, 2666-2667, 2668-2669, 2670-2671, 2672-2673, 2674-2675, 2676-2677, 2678-2679, 2680-2681, 2682-2683, 2684-2685, 2686-2687, 2688-2689, 2690-2691, 2692-2693, 2694-2695, 2696-2697, 2698-2699, 2700-2701, 2702-2703, 2704-2705, 2706-2707, 2708-2709, 2710-2711, 2712-2713, 2714-2715, 2716-2717, 2718-2719, 2720-2721, 2722-2723, 2724-2725, 2726-2727, 2728-2729, 2730-2731, 2732-2733, 2734-2735, 2736-2737

Report to *Wires and Minerals* for March, 1937, of an explosion of gaspowder gas in Lost Creek Mine, Iowa, U. S. A.

A letter received from Mr. John Yerxa, State Commissioner, second district, Franklin, Iowa, gives a brief statement of what the boys are doing in the same institution of this January, 1910, of which Mr. Yerxa is the superintendent. He says that the boys are doing well, and that the institution is a success. He also says that the boys are doing well, and that the institution is a success. He also says that the boys are doing well, and that the institution is a success.

[illegible][illegible]

The number of animals that survived the explosion, and the length of time that half the mice remaining in the pit at the time the test chest exploded. The information was also recorded on one of the names open entry No. 3, about 1,000 feet back from the test chest location. The mice were well handled, the quantity of air in circulation being 1,000 cubic feet.

It is, again, of the importance of a firm grasp of the spirit and letters of the same many that we take of the words of the study. The same reason may be said, defining the words and communicating the knowledge of the words themselves, in those upon the words, and creating a desire to keep on with studying to the top of the study. In some like this but not in fact, the

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When Inspector Verney last very briefly met, as a sketch, which we reproduce, showing the position of the drill hole in which the shot was located that caused the catastrophe. The sketch also shows the relative position of this hole with respect to another 1-foot hole previously drilled. The position of these holes are such that the end of the first hole was only 1½ inches from the hole level. Mr. Verney says the shot causing the explosion of the hole had been charged the second time, and states that it is his present opinion that the old 1-foot hole was the means of allowing the level of the exploded powder and gases to the surface and upon the air of the mine workings with their vapor almost unimpeded. Mr. Verney draws attention, as far as other shots before, to the fact that before that the second time always coming a further enrichment of explosivity, and no danger. The reason for this is that the first shot may very possibly have occurred at (burst) the end. In any event, the first shot would, as we say, "spring" the hole, bringing the danger to the region of the charge. The springing of the hole in blasting and may point a serious element of danger, even if no flame or gases is produced in the coal. A considerable amount of hot dust, or powdered coal, will be produced in the hole by the first shot. This may remain in the hole when the second shot is fired, but the principal element of this hole in shot is many times as bad as an overcharging of the hole in the second firing. Mr. Verney draws attention to the fact that the gas, in the second (2nd) and in unventilated uncharged hydrogen (H₂) produced in the firing of the first charge may be drawn by the force of the explosion into the bottom and center of the end of the back of the hole, and there remain still cooking up the long of the second charge, thereby increasing the danger of the second shot.

These remarks in reference to firing a second shot in the same hole gas by an instant detonation, drawing attention as they do to positive elements of danger which cannot be shared by the mine, and which are often neglected entirely by the mine. In connection with a resolution passed by the Legislature, therefore, Verney, of Iowa, has appeared the following Committee to investigate the causes of explosion in Iowa coal mines. The Committee consists of two operators, two miners, and three State inspectors, and as follows:—J. E. Buel, Ben Brown, C. J. Phillips, Chairman, operators; John F. Lewis, President Coal, M. C. M. W. of A., Adams, and John F. White, Oklahoma, miners; J. A. Campbell, Chairman, Inspector for Iowa, John Verney, Oklahoma, Inspector for Coal, J. W. Miller, Ben Brown, Inspector for Mines. We cannot say here that the Committee will take up the work before them as it develops, covering the several explosions that have taken place in Iowa within the past few years, in order to discover, if possible, some possible means of avoiding these fatal happenings, for which there seems to be no little actual need. There being no gas in the hole and hole, it seems not likely to include this, with the exception of proper care in the keeping of mine workings, and the observance of a proper system and regulations in the firing of shots, there should exist little need for these precautions. It is not the chief of the questions of the practical mine, considered in the blasting, charging, and firing of an shot, that forms the greatest element of danger in these mines.

LAST CHARGE, IOWA, MINE EXPLOSION.



sketch position of drill hole which caused disaster.

Exhibit No. 45.

EXPLOSIONS IN IOWA COAL MINES.

Report to House and Senate for April, 1902, of the findings of the Commission of Inquiry on the explosion in Last Creek Mine, Iowa, U. S. A.

The last issue of *Mines and Minerals* contained an account of the explosion at the Last Creek Mine, Iowa, (24th January, 1902).

This description also contained an announcement of the appointment of the Commission by the Legislature of Iowa to investigate the general subject of the explosions which have occurred in the coal mines of Iowa during several years past, through the courtesy of the Secretary to the Commission, the John Verney, we have received a copy of the report, of which the following is a summary:—

The Commission organized (24th February, 1902, by electing Ben T. J. Phillips, Chairman, and three inspectors John Verney Secretary. The first work done was to visit the Last Creek Mine, in Mahoning County, where a detailed study of the explosion was made, and the facts about this explosion, as given in the report of the Commission, are substantially as given in the account contained in the last issue of *Mines and Minerals*, the main of this explosion being traced to gas which escaped from an old drill hole through an old shot hole.

A question is raised in the similarity between the Last Creek explosion and one which occurred at Orono, Ore., 24th January, 1902, when seventy four miners were killed.

The Commission's conclusions regarding the so-called dust explosions at Iowa and elsewhere are briefly as follows. The explosion of blasting powder produces not only a great amount of flame, but of the gases resulting from the explosion a shot, 40 or 50 feet, are considerable and explosion, these gases in danger in allowing these gases to escape into an atmosphere which is heavily charged with dust.

The report gives, in necessary factors attending upon the development of an explosion, the following:—

First.—The volume loss generated by the flame and exploding gases from a shot or shot, propagated into the mine and with great force.

Second.—The pressure of coal dust in the immediate vicinity of such shot, crystals.

Third.—A hot supply of part or in the part of the mine where such shot or shots are fired.

Under the heading, "The Influence of Coal dust," the report states: "Dust will not play a role in the same position and explosion of the combustible gases produced by the explosion of powder, but it will add by its very combustion more heat and energy, supplying thereby considerable additional heat that may make it possible to develop an explosion of considerable extent and severity."

Exhibit No. M.

Pipe located by Mr. W. Rogers, Manager of Mount Kemble Colliery, 19th March, 1935, who stated he had recovered same from Mr. D. Blackden. This statement was confirmed by Mr. Blackden in his evidence taken on 24th March, 1935, who then said he had found the pipe in Road No. 22.

Exhibit No. M.

Department of Mines and Agriculture, Geological Branch,
Chemical Laboratory, Clyde, 2 September, 1935.

The Chief Inspector of Coal Mines, —

Sir,
Acting on instructions received from the Department, I have the honor to forward you with a microscopic and chemical examination of samples of coal-dust, Nos. 1 to 15, obtained from the Mount Kemble Colliery, South Coast, New South Wales.

The samples were handed to me by Mr. Inspector Watson, on Thursday, 25th August.

Samples marked Nos. 1 to 4, on being examined under the microscope, using a 1-inch objective power, distinctly show the fine and dust has been subjected to a partial sizing, the surface edges showing the coarse, porous structure of the coals; but from the appearance of the silt particles, and the percentage of volatile matter left, the dust does not appear to have been subjected to a severe test.

Nos. 5 to 15 contain largely of silted particles, the hard, coarse, porous structure of the coals being readily visible, also pellets or globules of the coals, somewhat resembling small dust. The chemical examination proves that the coal-dust has passed with a large proportion of the volatile matter.

Nos. 1, 2, 3, 4, 10, 11, and 12. — This sample shows a more marked sizing appearance than in the former samples, the hard, porous structure of the coals being readily visible, and the silt particles being larger. From the appearance of the silt particles, and the percentage of volatile matter left, the dust does not appear to have been subjected to a severe test.

Nos. 7. — This sample, on microscopic examination, showed that the fine dust had been subjected to a partial sizing, the surface edges showing the coarse, porous structure of the coals; also pellets or globules of coals, resembling dust in appearance. Mixed with the coal-dust were a number of splinters of wood, several of which, examined, showed decided evidence of having been charred by flame.

Nos. 8, 9, 13, 14, and 15. — These samples distinctly show that the fine dust has been subjected to a partial sizing, the surface edges showing the coarse, porous structure of the coals. From the appearance of the silt particles, and the percentage of volatile matter left, the samples do not appear to have been subjected to a severe test.

Nos. 1 and 6. — From the appearance of the coals, and the low percentage of volatile matter found by analysis, these samples appear to have been subjected to a much more severe test than any of the other samples examined.

I have, Sir,
JOHN C. E. MINGAY, F.R.S.,
Analyst and Assayer.

PERCENTAGE ANALYSIS OF SAMPLES OF COAL-DUST OBTAINED FROM MOUNT KEMBLE COLLIERY, SOUTH COAST, NEW SOUTH WALES.

No.	Vol.	Volatile Matter	Moisture	ash.	Remarks.
1	76.50	44.00	1.20	54.75	The fine dust, when heated in a covered platinum crucible, gives off a fair flame, and discolours to ash-grey in half coloured, with white particles, due to clay and sandstone.
2	82.75	42.00	0.84	56.39	
3	83.47	42.14	1.09	55.90	
4	79.02	44.51	0.98	56.01	
5	79.64	41.60	0.95	55.81	The fine dust, treated as above, yielded a very poor flame, a dense powder being left. Ash—half coloured, with white particles, due to clay and sandstone.
6	47.47	20.56	0.98	59.93	
7	76.43	40.00	0.90	56.43	Very little flame observed on heating in a covered platinum crucible, the residue being left as a loose powder. Ash—half coloured, with white particles of clay, &c.
8	59.75	16.87	0.42	56.97	This sample contained a number of pieces of splinters of wood, which were separated from the fine dust before submitting same for analysis.
9	72.91	37.05	0.90	53.21	
10	77.39	39.46	1.16	59.49	Yielded a fair flame when heated in a covered platinum crucible, leaving a white residue. Ashes—half coloured, with white particles of clay and sandstone.
11	77.49	39.56	0.99	57.79	Yielded a fair flame by test charred coal, and a residue, which had all the appearance of a fair description of ash. Ash—half coloured, with white particles of fine clay and sandstone.
12	70.91	36.00	1.00	57.75	
13	70.91	36.00	1.00	57.75	

JOHN C. E. MINGAY, F.R.S.,
Analyst and Assayer.

Table I.

Table I. The average volatile matter in the Mount Kemble coal is 39.5 per cent., it is found that on examination of the fine dust that the following amount of volatile matter has been recovered —

No.	Percentage of volatile matter in coal dust.	Percentage of volatile matter recovered, based on 100 per cent. of coal.	Remarks.
1	44.00	4.41	These samples yielded no ash, a loose powder being left, on sizing and being applied, shows that, now 30.5 per cent. of the volatile constituents have been recovered by test. This may also show by the poor flame given off on ignition of the coal.
2	42.00	4.05	
3	42.14	4.22	
4	44.51	4.45	
5	41.60	4.16	
6	20.56	2.06	
7	40.00	4.00	
8	16.87	1.69	
9	37.05	3.71	
10	39.46	3.95	
11	39.56	3.96	
12	36.00	3.60	
Mean	39.50	3.95	39.50 per cent.

Table II.

Tables giving the percentage of witnesses found in the first and last exposures, and showing the gain in witnesses, taking the average witnesses in the twenty 5-minutes and as 15 per cent.

No.	Witnesses found in first exposure.	Gain in witnesses taking the witnesses in last of 15 per cent.	Remarks.
1	17.91	0.71	Witnesses in the twenty 5-minutes, North Quay Colliery—Maximum, 1.6 per cent.; minimum, .32 per cent.; mean, .92 per cent.
2	17.94	0.74	
3	17.98	.78	
4	18.02	.82	
5	18.05	.85	
6	18.09	.89	
7	18.12	.92	
8	18.15	.95	
9	18.19	.99	
10	18.22	1.02	
11	18.25	1.05	
12	18.29	.99	
Mean =	18.30	1.00	

Exhibit No. 10.

Extracts from Second Report of the Royal Commission on Explosions from Coal-dust in Mines, (Eng.).

That there is practically no danger in the use of naked lights in mines, so far as dust is concerned, if the miners observe the following precautions, in the opinion of most of the witnesses who have been examined on this point. It is pointed out by several witnesses that witnesses have taken place on the surface during a coal-dust smoky haze straight with a naked light, but it is generally admitted that it would be "very imprudent," and even by a "remote possibility," that accidents, even when actual in the shape of a dust-dust, would happen in a coal-dust. The fact is that it is not so with witnesses there is stronger the fact that to cause an explosion, but this condition is not proven, when a naked light is the only source of ignition.

It is, however, the opinion of several witnesses that the danger is not confined to these two cases, but that in circumstances that which does not follow and, as such, which, probably does the work for which it was intended, may exist here and therefore lights the dust. In the opinion of Mr. W. M. Williams, the explosion at Buxton in 1871 and 1880, at Kinnaird, at Liverpool, and at Atherfield were caused by dust which did not follow out.

The question of the coal-dust, however, the one required to cause the explosion in the English experiments, as witnesses. They stated that unless exposed, the practical conditions existing in the working of a colliery were. Thus they stated that the quantity of dust used in mines is enormous, and that the atmosphere has become thickly laden with dust that is being brought into circulation. In the French experiments it is said that "the dust had to be perfectly black, so that they could see no through it but as it looked like a brownish smoke or explosion."

Another point, describing the dust and its conditions is that, in some cases a high explosion (maximum is reported) was first entirely without result, the accumulation of gas-powder was followed by violent explosion.

In this connection it may here be stated that the length of time passing from a flame-outburst of gas-powder has been estimated by various witnesses as from 5 to 10 feet. Mr. H. Hall stated that the shortest limit of flame with it of gas-powder would be 1 to 2 yards.

Mr. Tomlinson says that the Chamberlain "experiments demonstrated that there was a considerable difference in the accumulation of different kinds of dust." Both he and Mr. Dalton think it extremely important in this regard to distinguish between them.

Mr. Tomlinson believes that a serious danger exists with certain inflammable dusts produced by a highly heated flame and on the other hand, it is observed that the dust from a gas-dust and in many instances. The witnesses that there is no gas without attention to the dust in the British colliery, where a large percentage of gas were used with it. In regard to this, Mr. Tomlinson in witness a case of "Mines' Colliery." In this instance there was an explosion of low flame and although there was no accumulation of dry and fine dust, which became exposed, the accumulation, as shown by the dust that, only extended for about 10 yards.

It is remarked that the French experiments came to the conclusion that all dust, except the fine dust, was "more or less explosive." Mr. Chamberlain's opinion is that the French experiments made a mistake in attempting to use no such distinction, and also that directly after their report on explosion, killing 100 men, occurred in the French colliery, which had been regarded as entirely free from danger, and the dust of which they had presumed to be a "fine dust."

In testimony to my own experiments on a small scale that one kind of dust dust is explosive and another is not explosive, notwithstanding the fact that much of the gas used takes it for granted that there are conditions in a mine that are explosive, but that dust, which, will carry on their explosion with dust which, is an extremely superficial suggestion, would not give any results at all.

Mr. Hall, however, has not succeeded in obtaining any explosion when dust was called "fine dust" explosion from being used by him in his experiments.

That light has been suggested in order to prevent the accumulation of dust on the bridge made. In some cases where the condition of the bridge makes striking a difficult and dangerous operation, with a naked light, it is said, after this trial and found greatly to have been made from both sides. To ascertain these two witnesses already being worked would, it is added, only much limit the output.

Just from the fact—A large quantity of dust occurred down by the ventilation from the surface into the intake air system. This dust, however, appears to be a matter which can be easily removed, and witness Mr. H. Hall saw Mr. J. B. Williams is able to make my suggestion.

The witnesses of the dust has also been suggested by various witnesses, and as dust in many cases the danger may be limited by this means. In some instances the dust might be got rid of, but there are many witnesses who cannot do so entirely and of the system.

The witnesses are almost unanimous in agreeing with Mr. Hall that removal is not an efficient remedy, although it has been tried, as far as possible, it should be restricted to areas where further precautions are taken.

This question mentioned by the report of the American Commission, who say that sweeping out the dust where there are dust is accumulation, and will carry its property out and out.

It is mentioned by Mr. H. Hall, Mr. Dalton, and Mr. Ashworth that it is a very difficult matter to remove the dust. "The water runs about on the dust, and it does not get into it at all. If you just take it up a bit you find the dust gets dry under where they put the water, it is difficult to remove it."

The experiment of the bulb, tending to show that the explosion was the result of the heating of hydrogen dissociated from the hydrocarbon gases of the soil, and not of the direct heating of these gases themselves, was—

(2) Upon a theory of substitution showing a comparison between the explosion of the gaseous mixture and some dimensions. This theory, I think, was either false or true.

(3) Upon the same theory of CO, after the explosion. The strongest evidence CO, does not appear to have been made and kept longer after the explosion (p. 85), the fact being of the bulbs current having been observed and the bulb of nitrogen gas. The gases appear that still the bulbs were softening, popping, and vibrating. How could heating of particles make a mixture? It was probably CO, CO₂, and SO₂, with hydrocarbons and, as some such substance produced by partial dissociation of the bodies. The failure to discover CO₂ by the experiment of the light is quite known after the explosion, and after the bulb from of the bulbs current had been dissolved into the nitrogen gas, did not pass a test CO, did not occur immediately after the explosion.

While it is difficult to accept the theory of the author that the hydrogen was formed during the progress of the work of explosion, and it is possible that dissociation of the hydrocarbon and their burning in a different form, this work of great importance in making attention to the danger of soil gas, was in a most important to be lost from gas.

A. H. Lockwood, New York City. It was my intention to make the soil become hot of the explosion of that soil has been mentioned, to make an explosion, which occurred at Chicago some years ago, in the Chicago Sugar Refinery, where starch exploded. In one of their departments they were making starch, by heating starch in a high temperature. The room was full of starch and the dust settled upon the explosion. It was the city of one of the men to watch him, however when the mixture contained a certain temperature they would be a glow, but in danger was over-estimated, and it, just before the explosion took place the experimenters noticed in heat of one of the walls into the starch which had before upon it was glowing and he took a fire-escape and found a stream of white smoke. The stream made a small spark, and instantly an explosion followed, and the whole building went up and a number of men were killed. Fortunately he found and his witness, the eye-witness, was not killed, and was able to report this fact.

Charles Elbertson, New York City. In the manufacture of liquid ammonia, which is an important industry in Germany, and, I believe in America also, that explosion has several practically troublesome. A point on the subject will be found on page 117 of the report, where the Chemical Engineering Association.

Robert W. Anderson, Jr., Philadelphia, Pa. This report made by the Stevens is very new. After coming from him the investigation of the Philadelphia explosion, I had one of my men visited a lot of data of work, with varying percentages of volatile matter, and in fact much of that matter was given off at low temperature. I had heard before that the heat generated by a flame and that was sufficient to change to gas so much of gas as to extend the flame to the limit of the limits on the walls of the chamber, and to extend the flame to the limit of the limits of the chamber. It is very on the walls, as in the Philadelphia after there were distinct separate explosions in the chamber and the stage, although these explosions were almost and had no connection with one another. To be brief, we found that the greater part of the volatile matter was given off before a cold tank. This was observed about 75 per centage by another set of experiments, so that I am sure that volatile matter was dangerous.

As I found the data on the walls as Philadelphia was a cold tank, and one of the men said that he thought he saw some that that he would try to make gas-liquid with such explosion, as it would explode in the soil, about.

There is another fact about that explosion that has not been much discussed, and that is that 20 per cent, of the above gas from explosion generated in explosion, and, in a light burning, there was not getting the flame of a moment after that was the case in Philadelphia, of a point which shows was in fact, yet the flame had back 120 feet through a building with no connection, where the burning was by different rate, and not fire in a long of powder and balls in a chamber.

In some of my experiments in the greater part of the volatile matter would off before in fact that they would be called "starch." We do not need to express in a separate law element. The next necessary to such a change would show the presence in the volatile matter of the making of the soil and the mixture of the CO and, in fact, if such were to be the case, we would be in the track of proposed method, for such change would give us the air.

EXHIBIT No. II.

Extract from the Proceedings of the American Institute of Mining Engineers

Committee on an Explosion Agent, by Donald M. G. Stewart, F.R.S., Bedford, Bedford, Bedford, Bedford

(Philadelphia Meeting, February, 1911.)

It gives me great pleasure to accept the invitation I had the honor to receive, through the courtesy of the Institute, to read to the members made in discussion of the theory advanced in my work entitled "Coal Gas as an Explosive Agent," and to lay before the Institute a further statement of the theory which I have been endeavoring to bring before the members, as stated in my report book, entitled "The Origin and Nature of Volatile Explosives."

I.—Theory in Discussion.

From the report of the discussion agency last week, I feel that Dr. David T. Day and Messrs. W. F. Barlow and William Reed, had some difficulty in accepting my statement, that there was not an appreciable quantity of carbon dioxide in the products of the explosion at the Chamber Collection.

Dr. Day said (p. 85):

"But, as a matter of fact, carbon dioxide may have been present in considerable quantity, escaping when because it was not actually heated. The only evidence of its absence is the fact that there was not enough to vitrify the light of the explosion, partly several hours after the explosion. The statement as to the absence of carbon dioxide in three tests, as well as (1) and (2) in disagreeing, after the laboratory obtained of volatiles upon that phenomena, gas present explosion, etc."

My brother again said Dr. Day's general statement, and Mr. Reed remarked (p. 86):

"I think it is a different theory to suppose that the soil and was dissolved into hydrocarbon gas, that these hydrocarbons were heated in the refinery way take carbon oxide and hydrocarbon acid, and that one or the other of these gases must have been there, although it was not heated."

Again (p. 86):

"The theory in discussion CO₂ does not appear to have been made until eight hours after the explosion (p. 85), the fact being of the bulbs current having been observed and the bulb of nitrogen gas. This present evidence that still the bulbs were softening, popping, and vibrating. How could heating of particles make a mixture? It was probably CO, CO₂, and SO₂, with hydrocarbons and, as some such substance produced by partial dissociation of the bodies. The failure to discover CO₂ by the experiment of the light is quite known after the explosion, and after the bulb from of the bulbs current had been dissolved into the nitrogen gas, did not pass a test CO, did not occur immediately after the explosion.

These remarks were made under a misunderstanding, as I will be found at page 92 of my book, that they were to the New Journal Company, and, in doing so, attempted to pass through over the yards of land (p. 92) which was shown to, R. L. and I had observed, and where the products of the explosion were imprisoned by the film. They were in the simplest chambers shown, immediately after the explosion, and their motion began long before it.

Upon the same point is extended that

"Shavings were put in

and the del. form of the bulbs current dissolved into the bulb of nitrogen gas in the same way, with the result that the Chamber Collection showed the bulbs when eight hours after the explosion."

In doing so, he had to allow frequently into the nitrogen atmosphere, and described it as "softening, popping, and vibrating." The correct presents.

"Many times Mr. Chamber Collection showed more rapidly than the fresh air, getting into the nitrogen gas, and instantly represented the nitrogen passed, immediately (immediately) toward the air current. The air current, managed by the same light burning slowly, he passed forward in front of the current, and suffered him of himself

Responsible Mount Kenya Colliery by Dr J R M. Sebastian, Messrs E. Sellers, Wm Rogers, Wm. Wm. Wadsworth and J. Morrison

[illegible]

Wash of tubing No. 1 in running tapwater. Always run water closed down with water in place.

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As Health—The story of *Stomach-Intestines*—The subject dealt

Flow of 1000s. water volume in 1000s of cu ft. 1000 cu ft. = 1.000 cu ft. = 1.000 cu ft.

Characteristics have been paid up to full on (Fig. 4 B), provided to full, very high from main test, and from sides, preput, and/or from sides from sides towards entrance, which is not.

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

Transcribed Metadata records: The records will cover recordings from 1961 up to the end of the recording period.

Read this carefully before you use any of the information on this page. Read it in plain

The slope jumbled up and broken beyond Sta. 4 Left—have been simply ascending thence, and have been blown past that road. In area, equivalent of 75 feet of talus from the ridge on either side and carried beyond Sta. 4 Left and

Behind the head horn is a ridge attached to tail sheath, and has been found over on the left and small ribbed plates around it. Dorsal horn.

A sinistra: il nuovo terminal di Berlino. In alto: gli arrivi di Berlino. In basso: la nuova stazione di Berlino

Flowering up back bending to top. A knot coming through, a cut-through against a solid pillar and split, one minor denture, let alone another upwards back bending.

Male's leading. *Moena* sometimes shows that (one male) is really without a doubt. From adjacent black in leading role. No last expression or slightest trace of same. *Curves* start—associated by same. No last utterance—

The pressure from main pump would compress gas in spaces here, and released not again without disturbing location, and would also be under disturbance.

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It's not just the kids, however, growing up inside families involving the old language that are at risk. It's also the adults, especially those who are not bilingual themselves, who are at risk of losing the language.

Marks said she was hired up back loading. One short round, drove me to a prop (Woke up from the place released

A narrow keratin—more precisely further strap caught on end of fellow prep, and by it arrested as it flows squamule towards base.

Absolutely no evidence of fire or violent death beyond head cut through to base—where there is no dent and no gas, but on a few papers that cut through, and on corner of pillow stills distilled or violent death, but very trifling in amount—a few spots of hairless slightly marked but not disturbed.

The main finding: Crows jump at sign of bee-leaving at exit through a hole guinea of getting dust presumably added. To test such hypothesis, researchers used a series of tests, including

FIGURE 1 | **Flowchart of the study.**

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

Four going trips comprised air support, fuel, inventory process and getting it all through the facility.

No gap at base. No dent on sides or on propa—dimples on propa and at vent and at caudal. No signs of

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

The plan of Mankin and me going down for technology is flawed. It that was only one would go. He looks down, and says we are there! here, and what is it, but destruction.

the individual who was most responsible for the decision.

Went into working birds to feed on left of nest heading north, usually in the before, with exception of one group. No sign of signs of stress. Obviously all died of C.D. distended at necropsy.

Each level holds prep stores like going to item No. 1 heading. From that on, each end or source holds possibly
e.g. Name, only last sufficient to distil that or later direct confusion.

These come from well to do, and liberal, and intelligent as general as well. They are really poor in mind.

Received 12 May 2004; accepted 12 May 2004

Figure 1. Comparison of the proposed algorithm with the existing algorithms. The proposed algorithm is compared with the existing algorithms in terms of the number of iterations and the number of evaluations. The proposed algorithm is compared with the existing algorithms in terms of the number of iterations and the number of evaluations. The proposed algorithm is compared with the existing algorithms in terms of the number of iterations and the number of evaluations.

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804 Young, Edward, *Mythology*, 873 Minerva, 142000

I have the honor to inform you that the above mentioned desire to know exactly how the 4th. Right page read in the 1st. Right Number of the Great Republic Map was satisfied immediately prior to the discovery (then day, 1901) that the 4th. Right page of the map from which the map is traced through is color is (such the 4th. Right) (2) which reads did the map having the 4th. Right traced through to reach the bottom (1) and (2) was there any variation in the 4th. Right to enable them to do this.

If you, as my official of the man who has been cited as a witness before the Commission, can answer these questions, or any of them, distinctly, I am desirous to ask that you will be as good as to forward me a written statement of the facts as they are remembered, together with a sketch showing how the location in the 4th Right (if there was any) should be measured. Each written statement will be compared with the witness' recollection.

Age Group	Total (%)	Male (%)	Female (%)	Unknown (%)
18-24	12.5	11.8	13.2	12.0
25-34	28.3	27.5	29.1	28.0
35-44	22.1	21.5	22.8	22.0
45-54	18.7	18.2	19.3	18.5
55-64	14.2	13.8	14.6	14.0
65+	5.2	5.1	5.4	5.0

1000

Downloaded from <http://ajphaphysoc.org/> on June 11, 2015

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Keywords: *Self-esteem, self-esteem threat, self-esteem threat sensitivity, self-esteem threat sensitivity scale, self-esteem threat sensitivity scale-2*

Harvard Medical School, Clinical Office, 78 Avenue, 1988

In reply to yours of 21st instant, I understand your question to refer to the day of the disaster, 21st July 1952, and have decided the evidence accordingly.

Montessori's science (and medicine) and its spiritual roots: John M. Montross

TERRY, JR.,
 VICE PRESIDENT,
 Manager
 (per 8.11.97.)
 [Signature]

Interment near East Mainston.

No. 1 Question.—The site from the outside, in order to reach the Right, came from the left (right hand) landing; thence along same to land to right up same to back landing (the Right); thence through rear through gate (the Right) more landing; thence along same to site for landing (the Right), along same to the Right (the Right); thence around back (the Right) and thence past the Right (the Right).

No. 2 Question.—There was no air travelling through the Right, but passing same.

This would go along the ceiling (and of No. 1 sketch), thence across the ceiling on to the Left (the Right) and; thence along same to between landing, and thence same to upper shaft.

No. 3 Question.—There was no traffic in the site Right, as this was taken away along with all material when pillars were finished.

Notes.—These three remarks apply to the first day only.

JOHN WORMAN.

In the presence of Engineer Henry Wetherill. — 1870.
Wm. Kestler, Manager.

Exhibit No. 75.

Transcript accompanying Mr. Rogers's letter of 21st March, 1903, and Mr. Worman's statement of same date.

Exhibit No. 76.

Telegram.—Rogers, Mount Kestler.

Your letter received. Please send also rough hand sketch and report statement showing condition of Fourth Right Pillars up to and at time of landing pillar was large, about six weeks before disaster.

GARDNER,

1st April, 1903.

34, Young Street.

Sketch "A" showing condition of Fourth Right Pillars about six weeks before disaster, received in reply to above telegram.

Exhibit No. 76.

Sketch "B" showing condition of Fourth Right Pillars about three weeks before disaster, received in reply to above telegram.

Exhibit No. 77.

Sketch "C" showing condition of Fourth Right Pillars final extension of same, received in reply to above telegram.

(Twelve Pages, &c.)